

SMWC WATERSHED CONNECTION Spring 2007

This edition of the Watershed Connection is designed to serve as a 2006 update to the San Miguel Watershed Ecological Health Report Card, issued in 2005. It provides information on watershed health in 2006, as well as upcoming watershed management activities for field season 2007. The updates are arranged according to categories evaluated in the report card: Climate, Water, Aquatic Life, Wildlife, Vegetation, and Soils. Additional information is supplied on resource and recreation management activities. Watershed health grades may be re-evaluated in the future.

CLIMATE

The San Miguel River appears to be at or near peak as of this writing (May 17), with flows well above average for the past week. The Placerville gauging station reported a peak of 900 cfs on May 16. Flows have been bolstered by good April snows and early high elevation snowpack, which lasted through a mostly cold winter, and unseasonably warm March.

Colorado's summer water supply is estimated by a network of Snowtel stations, few of which monitor our watershed. Lone Cone, Red Mountain Pass, Lizard Head, and Mineral Creek stations, have shown southwest Colorado to have the weakest snowpack in the state for most of last winter.

A question often posed currently is how climate change will affect our snow and water supply. This past winter in our area has been more typical of winters in the 1970s, with long periods of cold weather in December and January, a snowy month (February) and a couple of dry months (January and March). February and March tended to confirm global warming theory with normal temps by day and warmer than normal temps by night.

As for the long range, comparing the period of record (since 1900), and two recent "average" cycles, 1961-1990 and 1971-2005, show a cooler and slightly drier 20th century than the last 30 years of the century. No obvious deviation from the long term average of 23.19" of precipitation is apparent. The past 6 years (2001-2006) have been somewhat drier than average at 20.58" though this is a rather short period to analyze. It is nonetheless intriguing to look for change in monthly patterns, with winter months of December through April all drier than the long term and May and June only half the long term moisture. An average of the past six years shows wetter conditions for August, September, and November. Note that in recent years records are kept at Society Turn, which might yield lower precipitation totals, as well as higher highs and lower lows.

The San Miguel may experience another peak in early June, but with the current weak snowpack flows at Placerville won't exceed 1000 cfs, at least by much, and will quickly decline to 300 cfs or less, awaiting summer rains. Remember last summers exceptional succession of wet months from July through October, including August's 5.27", the 9th highest August precipitation levels, which bolstered summer flows. By Jerry Greene

CLIMATE SUMMARY

October started the 2007 Water Year. In the US a water year is the 12 month period from 10/1 through the following 9/30. So, the end of the 2007 Water Year is 9/30/07. The dates for the "water year" were selected by the USGS as a best fit for the hydrologic cycle in our portion of the northern hemisphere (i.e. how water accumulates and is used over time on the earth's surface). The water supply and soil moisture for next year's growing season best fits the accumulated moisture during the water year.

2006 was an interesting water year. Most of the period from January through June was moisture limited. Then, precipitation averaged about 160% over the July-September period. For the water year, we received 101% of normal precipitation. September averaged 4.8 degrees below normal temperatures. For the water year, temperatures were 1.28 degrees above normal. For 2007, the cumulative precipitation for the water year is currently up to 101% for our watershed.

According to snow survey reports, the San Miguel/Dolores Basins started 2007 with a snow water equivalent of 134%. However, by the end of May those figures dropped dramatically to 13%. That is because warmer than normal temperatures have caused the snowpack to melt early. The 3 month forecast for June, July and August continues to be for warmer than normal temperatures and normal to slightly below normal precipitation. By Dennis M. Murphy, BLM Hydrologist

THE TELLURIDE UNPLUGGED INITIATIVE

Last October, Telluride's Ecology Commission launched a community-wide initiative called Telluride Unplugged. Having committed Telluride to meeting the goals of the Kyoto Protocol by signing onto the U.S. Mayors Climate Protection Agreement and recognizing that the spirit of these agreements intended to include everyone—not just Town Government, Town Council asked the Commission to spearhead a public awareness campaign to educate, motivate, and engage citizens in a united effort to decrease regional carbon emissions.

The Telluride Unplugged Initiative is an annual information “fest” that brings the Community into contact with the latest scientific thinking on Climate Change and up-to-date, ready-to-implement technologies to help us decrease our emissions of Greenhouse Gases. It's intent is to prompt residents, business owners, Town staff and all Councils, Commissions, and Advisory Committees to investigate how Climate Change may impact our local environment, discuss how the community might mitigate predicted impacts, and prepare for changes to come.

Last year's campaign provided 6 weeks of practical information on how each of us can easily reduce our carbon footprint—the amount of carbon dioxide emissions we generate through consumption patterns, transportation habits, and home and business heating, lighting, and electronics. The opening event was a free screening of the documentary “An Inconvenient Truth”, both at the school for all students, and for adults. These screenings were conducted in partnership with the RI School District. The six week campaign included information on energy efficient lighting, food, purchasing, packaging, reusing, recycling, phantom loads, and transportation.

The local impacts of global climate change can be understood in a regional context. The Western US has warmed at twice the rate of the East over the past half century. Climate change in the Western U.S. will result in more heat, less snow pack, earlier snowmelt, and more runoff. Scarcity of water makes our region's ecosystems and wildlife especially vulnerable to changes in temperature, which may result in rapid loss of species. Insect infestations are likely to become more common as temperatures rise, as witnessed by recent tent caterpillar and bark beetle problems. More heat and less water may also result in more wildfires

Such changes will pose serious threats to Telluride's existing environment, economy, and quality of life. As a premier destination ski resort, our region stands to lose almost all of its snow pack by 2100. As a remote hiker's paradise, high country wildflowers, snow-capped vistas, and many high country animal species are likely to be displaced or completely lost. For more information on the Telluride Unplugged initiative go to www.telluride-co.gov and look under “About Telluride”. The event will be held again in October 2007. By Karen Guglielmon, Town of Telluride

WATER

AMES POWER PLANT RELICENSING EFFORT

The Federal Energy Regulatory Commission (FERC) Relicensing effort for the Ames hydroelectric power plant is progressing on schedule. Power plant operators decided to use a new, optional FERC Relicensing process known as the Integrating Licensing Process (ILP), taking an estimated completion time of 5 to 6 years. This process, unlike previous ones, requires involvement of interested parties at the beginning of the process rather than in a review capacity at the end. At the core of the ILP is identification of power plant related issues. Subsequently, study plans are developed and implemented to better understand issues and identify potential corrective actions, which could become a condition of approval on the new license to operate.

One of the study plans is looking at the issue of the power plant's influence on river ice processes, and the influence on the river's biota from diurnal flow fluctuations from power peaking operations. To address this issue, monitoring equipment was installed in the San Miguel River, the South and Lake Forks, and Trout Lake. Water levels and temperature are being monitored, which provide valuable information to better understand river icing and power peaking issues. As part of this study, experimental operations of the

power plant are needed during winter. Last winter a series of water column mixers were installed in Trout Lake, with the goal of cooling lake-bottom temperatures by 5-6 degrees Fahrenheit. Additionally, flow release modifications for power peaking from the power plant outlet were designed to encourage the formation of a stable ice cover on the South Fork and San Miguel Rivers. Daily Power peak flows were reduced on the high end to about 45 cfs and increased on the low end to about 25 cfs.

Water temperature and stream stage data was collected at several locations and is being analyzed to plan for next years study plan needs. The relicensing schedule should conclude with a new operational license for the Ames Plant in mid 2010, and will incorporate significant findings from the implemented study plans. By Dennis Murphy, BLM Hydrologist

OIL AND GAS DEVELOPMENT

San Miguel County has been actively participating with a local government stakeholders group to ensure that oil and gas development is subject to the same stormwater and erosion control management and permitting requirements as other construction activities. State Stormwater Permits are required for all construction activities that disturb greater than one acre. The primary concern is the effect of sediment on water quality and aquatic habitat. Construction sites have the potential to lose 35 to 45 tons of sediment per acre per year. This is the reason the State requires permits and that stormwater control measures be implemented on construction sites.

The oil and gas industry asserted the Federal Energy Policy Act exempted them from these requirements. The State of Colorado took the position it retained its authority to regulate in this area and it was in the public interest to continue to do so. The oil and gas industry also recommended the oversight of the stormwater permit requirements be moved from the Water Quality Control Division (WQCD) of the Colorado Department of Public Health and Environment (CDPHE) where it currently resides to the Colorado Oil and Gas Conservation Commission (COGCC). As the primary mission of the WQCD is to protect water quality while the primary mission of the COGCC is to ensure the efficient development of oil and gas resources, San Miguel County and the Stakeholders Group also opposed this change. As San Miguel County felt these issues were critical to protection of County water quality, they sent representatives to testify at the WQC Commission hearing in January 2006 supporting these positions.

Currently, most of the oil and gas development is occurring in the Dry Creek Watershed, which is a tributary to the San Miguel with the confluence just below Naturita. However, thousands of acres of land in the San Miguel Watershed in the Norwood area have been leased in the last two years for potential oil and gas development. This includes lands surrounding the Gurley Reservoir, the domestic water supply for the town of Norwood. This magnifies the importance of proper stormwater management as in addition to contributing sediment to waters; other potential contaminants are used and produced in the course of oil and gas development.

In addition, in February 2006 approximately 4,800 acres of land in the San Miguel River/Leopard Creek corridors near Placerville were offered by BLM for lease for oil and gas development. These parcels were pulled from the lease offering pending a Wild and Scenic eligibility assessment. These parcels may be offered again in the future after the completion of this analysis. By Dave Schneck, San Miguel County

Southwestern Water Conservation District

The Southwestern Water Conservation District ("SWCD") was created by Colorado State legislature in 1941. The district's purpose includes: "Surveying existing water resources and basin rivers, taking actions necessary to secure and insure an adequate water supply - present and future, constructing water reservoirs, entering into contracts with other water agencies, organizing special assessment districts (known as water conservancy districts), providing for instream flows for fisheries and other legal responsibilities needed by the district to fulfill its purposes."

The SWCD Board of Directors is appointed by county commissioners from each of nine counties in the San Juan and Dolores river basins and serve four year terms. The District is funded through a mill levy (2 tenths of one penny for every dollar of assessed valuation, or \$2 for every \$100 of assessed value) throughout the entire district on real property. The budget is approved in a public meeting held by the district directors on an annual basis.

Currently, SWCD is involved in projects including the triannual review of water quality data on the San Miguel river and its tributaries. SWCD staff is assisting with the Uravan water rights discussion. For many years, SWCD participated in a cost sharing agreement with USGS for local stream gages, and supports an ongoing weather modification program. In response to continuing drought, SWCD recently entered an agreement with the Lower Basin States to extend the cloud seeding period in southwestern Colorado. This agreement helps satisfy the Secretary of the Interior's wish that more active water conservation programs be initiated in the Colorado River Basin.

SWCD recently granted \$40,000 to partner with other entities in rehabilitating the CC Ditch diversion to permit a more efficient diversion of water and allow safe passage of boats and fish. The diversion is located on the San Miguel River upstream of Nucla. Construction of that project will commence soon after the 2007 irrigation season.

Every year, SWCD sponsors a water seminar for water users in southwestern Colorado, and an annual Children's Water Festival continues to be an educational experience for area fifth graders. SWCD is the primary sponsor of the Water Information Program, which distributes important and current water conservation materials area-wide. In addition, SWCD staff and directors participate on a statewide level with all water-related conferences and workshops and also make loans and grants to smaller water users to ensure that water is best put to beneficial use. For example, in San Miguel County, SWCD has helped to fund cloud seeding in partnership with the Mountain Village Metro District, engineering studies and consulting for Farmers Water Development Company, and a water conservation study by the San Miguel Water Conservancy District. *By April Montgomery – SWCD Representative for San Miguel County*

San Miguel River Water Quality

The Colorado Department of Public Health and Environment's Water Quality Control Division (CDPHE-WQCD), a State agency, and Water Quality Control Commission (WQCC), a governor appointed Commission, have authority to implement the Colorado Water Quality Control Act. Regulation No 31 of the Act, provides basic standards, an implementation process, and a system for classifying state surface waters, assigns water quality standards based on uses, grants temporary modifications and provides for periodic review of the classifications and standards. Regulation 31 is intended to implement the Colorado Water Control Act by maintaining and improving the quality of the State surface waters. The regulation is based on the best available knowledge to ensure suitability of Colorado waters for beneficial uses including public water supplies, domestic, agricultural, industrial and recreational uses and protection and propagation of terrestrial and aquatic life.

The WQCD's classification system recognizes 5 major river basins in the State: the Rio Grande, San Juan, Colorado, Green, and Platte River Basins. Regulation Number 35 provides the Classification and Numeric Standards for the Gunnison and Lower Dolores River Basins. The San Miguel River Basin is part of the Lower Dolores River Basin, which is part of the Colorado River Basin. The WQCD has delineated the San Miguel River into 15 water body segments, which vary from high mountain streams to ephemeral washes in the desert rim rock country. The combined stream length of the San Miguel River and its tributaries is 1,826.41 miles.

The water bodies are classified by use including aquatic life cold water, aquatic life warm water, recreation, water supply and agriculture. Water Quality Standards have been established to protect the various uses for each water body segment. Standards are set for physical and biological parameters. Water quality standards are the "yard stick" by which the State assesses the status of the water body or stream segment. The state compares recent information regarding the physical, chemical and biological condition of a stream segment with the associated water quality standards for that segment. Water quality is reviewed by the WQCC every 3 years.

Issues of concern identified at the June 2006 Gunnison and Lower Dolores River Basin Hearing in Cortez were: temperature issues below the CC diversion ditch, near the Tri-State Generation and Transmission Nucla Power Station, located upstream of Naturita; addition of uranium table value standards in the main stem of the San Miguel River from a point immediately below the confluence of Naturita Creek to its confluence with the Dolores River and on all tributaries, lakes, reservoirs and wetlands from a point immediately below the confluence of Leopard Creek to the Dolores River due to uranium development; and, high zinc concentrations in the head water tributaries of Marshall, Ingram Creeks and upper segments

of the San Miguel River, below the Idarado Mine. Other headwater tributaries are being further evaluated for potentially exceeding metals standards.

At the June 2006 Hearing, the WQCC re-segmented the San Miguel river segment 4 (SMR immediately above the confluence with South Fork to a point immediately below the confluence of Naturita Cr.) into segments 4a and 4b with a new segment boundary at the CC Ditch. The decision was made based on dewatered conditions below the CC Ditch affecting the temperature of the river. The temperature standard of 20° C (68° F) is applied to segments 4a and 4b. A new temporary modification has been applied to segment 4b, below the mixing zone of Tri-State. The commission adopted a temporary modification for temperature in the lower portion of segment 4b of 26.3° C (80° F), as a maximum weekly average temperature from 6/1 to 9/30, to expire 12/3/2011. The WQCD agreed that Tri-State would maintain the existing daily maximum permit limit of 30° C (86° F) at the end-of-pipe.

There is uncertainty associated with the underlying temperature standard in the lower portion of segment 4b. This portion of the stream is a transition between cold and warm water. A temporary modification has been adopted to provide time to address this uncertainty and recommend appropriate standards. Tri-State, in coordination with WQCD and DOW will conduct studies designed to address whether Tri-State's discharge has an adverse impact on the aquatic community.

When streams do not meet the State's water quality standards they are determined to be "water quality limited". Of the 1,826 miles of streams in the San Miguel River basin, 12.7 miles (0.7%) are determined to be water quality limited. The remaining 99.3 % of the basin's stream miles meet the standards.

Ingram Creek, Marshall Creek, and the San Miguel River, from where it forms at the confluence of Ingram and Bridal Veil Creeks to the South Fork, are identified as being water quality limited for zinc as a result of historic mining operations. Additionally, Ingram Creek is on the Monitoring and Evaluation (M & E) List for cadmium and manganese. The main stem of the Howard fork is on the M & E list for total iron. Waterfall Creek is on the M & E list for Lead, although the most recent sampling indicated that all water quality standards are being met.

The State and stakeholders are continuing to work together to protect the various uses and users in San Miguel stream segments. For further information, please contact: Daniel Beley, CDPHE-WQCD, 303-692-3606, daniel.beley@state.co.us; Sarah Johnson, CDPHE-WQCD, 303-692-3609, sarah.johnson@state.co.us By Camille Price, CDPHE-HMWMD, 970- 728-5487, Camille.price@state.co.us

IDARADO TELLURIDE REMEDIATION PROJECT

Success of the Idarado mine remediation in the San Miguel Watershed is determined by a 50% reduction in zinc concentrations in the San Miguel River, and adequate vegetative cover on tailings piles. Idarado revegetation of the Telluride Tailings piles, as well as remediation work in Marshall, Savage and Black Bear basins, and at the Meldrum and Mill Level tunnels, has resulted in Idarado reaching the Consent Decree's performance objective of a 50% reduction of total zinc concentrations in the river. In 2005, the 52-week annual average total zinc concentration in the San Miguel River was 0.31 mg/l, in 2006 it was 0.30 mg/l, below the water quality performance objective of 0.336 mg/l.

Irrigation of the Telluride tailings piles has occurred in 2005 and 2006, and fertilization occurred in 2005. Vegetative cover is measured annually, and in 2006 exceeded the requirements specified in the Consent Decree. Sampling of the Telluride tailings piles during the 9th and 10 growing seasons following cessation of irrigation and fertilization will determine if Idarado has been successful in meeting the performance objectives specified in the Consent Decree. By Camille Price, CDPHE

USFS works towards Carbonero Tailings Reclamation

Norwood District Ranger Judy Schutz is pleased to announce the award of the Design/Build Non-Time-Critical Removal Action contract for the Carbonero Tailings Site to Millennium Science & Engineering, Inc. (MSE). MSE is an international environmental consulting engineering firm specializing in mine site reclamation, with a regional office in Salt Lake City, UT. The reclamation will be completed under the USFS' Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) authority. The reclamation efforts implemented will meet removal objectives for this site: reduction of risk to human

health and environment by minimizing the potential for migration of contaminants from the tailings to the surrounding soil, surface water, groundwater and air.

Analysis by consultants working with the Trust for Land Restoration (TLR) estimated the volume of mill tailings at the site to be approximately 15,000 cubic yards. Most of the tailings are situated on USFS administered land, but a portion are located on a patented mining claim, the Ferric Oxide Placer. In 2005, the Town of Ophir purchased the Ferric Oxide Placer as an open space acquisition. The Carbonero Tailings Site will be reclaimed as a cooperative project between the USFS and the Town of Ophir.

The USFS and MSE have together determined that it is important to more thoroughly re-evaluate all reclamation alternatives during the 2007 summer field season. Linda Lanham, On-Scene Coordinator for the GMUG Forest Supervisor's Office, stated "The Forest Service wants to take the time to make sure we do this cleanup right, and end up with something that benefits the environment, and that the public, the Town of Ophir, and the USFS are happy with". Once MSE completes their review of the proposed alternatives, they will make a recommendation to the USFS, who will host a public meeting in Ophir for discussion.

The Carbonero Tailings site is one of three mining-related cleanup priorities for the Howard Fork, as identified in 2001 by a working group sponsored by the SMWC. The other two priorities are the Carbonero Mine and the Carribeau Mine. The USFS and TLR are beginning their 6th field season of cooperation to investigate and characterize abandoned mining sites and acid rock drainage (ARD) in the Howard Fork valley. ARD is water contaminated by heavy metals that emanates from mine openings, from the toe of waste rock and tailings piles, and, sometimes, from natural occurring springs and seeps. ARD in the Howard Fork severely impacts aquatic insect reproduction and aquatic fish species, but is not thought to threaten human health. By Pat Willits, TLR

URAVAN CLEANUP NEARS COMPLETION

In 1987, Umetco and the State of Colorado entered into an agreement regarding the cleanup of the uranium mill site at Uravan. This reclamation work will be completed in 2007. As a part of the agreement approved by the federal court, Umetco's water rights were put in a trust to be used to complete the reclamation activities at Uravan. These water rights, some of which are very senior, are to be transferred to the Colorado Water Conservation Board after all reclamation activities are completed.

Umetco is currently determining what water will be needed in the future to assure success of reclamation and revegetation activities at Uravan. In addition, efforts are being made to see if a part of the water rights could be used in the future by the towns of Nucla and Naturita. In the future, discussions will be held by Uravan water trustees, representatives from local communities, and the Colorado Water Conservation Board to determine the best possible use for these San Miguel River water rights. By Rahe Junge, Umetco

TSG: GOLF COURSE IRRIGATION EFFICIENCY IMPROVED

The golf course in Mountain Village is a popular site with golf rounds in excess of 10,000 annually. Extensive amounts of water are required to irrigate and sustain this recreational amenity. At the core of the turf's continued existence is the irrigation system, which uses a series of pumps and approximately 40 miles of pipe to sustain the 75 acres of maintained tees, greens and fairways. In an effort to reduce the amount of water the course requires on a daily basis, TSG has committed to a two-step process where, 1. turf area is reduced to the minimum acreage necessary, and 2. irrigation water is applied in the most efficient manner possible.

The original area platted for the golf course was in excess of 120 acres, however estimates of maintained turf at the complete opening in 1992 are placed at 105 acres. According to Kevin Cahalane, G.C. Superintendent, the area maintained today hovers around 75 acres. 30 acres were eliminated over the last 12 years. The abandoned blue-grass turf has slowly been replaced by more drought-tolerant grasses, including native species.

Recent improvements to the original irrigation system have increased control over water management, including application rates and the length of time any "zone" is operating. By shifting the irrigation system to a centrally managed, computerized program, developed specifically for the golf

industry, TSG is able to target specific areas on the course requiring unique water application rates. These enhancements and the continued refinement of the computer model have contributed to an estimated 25-40% efficiency improvement over the past 3 years. Of course, rain lets us be more efficient too, as the golf course did not call for any irrigation water between 7/30/06 and 8/26/06, due to the 8.13" inches of rain recorded during that period.

TSG will continue to look for opportunities to reduce waste and manage its water resources in the most efficient manner possible as a steward of lands in the San Miguel Watershed. These efforts should contribute to the improved health of the San Miguel watershed in the future. By Chris Hazen, TSG

AN EXPERIENCE OF A LIFE TIME

As a hydrologist for the BLM for the 29 years, I have wanted to experience a flash flood, rather than just visit and assess a flood's aftermath. On 8/2/06 I was monitoring stabilization efforts on the Craig Draw Burn area. At our last monitoring site, on the far end of the burned area from the access road we experienced an intense precipitation event. We got back to our vehicle, which was 200-300 yards away, in a totally saturated condition. Within minutes, while driving out across the burn, water began ponding, then flowing on the soil surface. On our way back to Norwood, via the Sanborn Park Road, traffic was stopped about half way between the Cascabel Ranch and the Norwood Bridge. Two drainages originating in the vicinity of the burned area had flooded and dumped a large sediment load on to the road and into the San Miguel River. The river was choked to about 1/3 of its pre-flood width from the debris flow. The San Miguel County Road and Bridge Department had the road cleared and open by early evening. It will take some high river flows or ice flows to erode flood debris and restore pre-flood channel dimensions. Currently, about half of the river channel is still choked with debris. By Dennis Murphy, BLM Hydrologist

Sanborn Park Road after Flood on August 2, 2006

SAN MIGUEL RIVER SEASON

It's spring runoff season, and BLM advises boaters to be aware of constantly changing flows and potentially hazardous river conditions such as fallen trees, log jams, large boulders, and other debris. BLM river rangers and local boaters work together to remove hazards, and keep safe channels open for boating. This work is dangerous, especially during high flows, and many obstacles may be impossible to remove safely. Historically there have been trees down across the river just upstream from the Specie Creek Bridge, requiring a portage. Please call the BLM (970-240-5300) with locations of river obstacles so that users may be made aware. Boaters need to scout potentially hazardous runs, and be prepared to portage around obstacles. Wear protective gear like helmets, shoes, and wet suits, carry emergency and rescue equipment, and know how to use it. Boat at your skill level!

Information can be obtained at <http://co.waterdata.usgs.gov/nwis/rt> for flow information for the San Miguel, Gunnison Gorge, Lower Gunnison, and Dolores Rivers. Check out more river info at the BLM website www.co.blm.gov/ubra/ubra-rec.htm or the River Management Society website www.river-management.org/BLM-Rivers/floatable.htm. Current 2007 snow pack conditions are relatively low at 57% of normal. Plan for an early short boating season on the San Miguel.

Boaters in Norwood Canyon should be aware of a water diversion downstream of Horsefly Creek. At most flows the diversion can be run on the left, or portaged on the private land on right (east) side or BLM land on left (west) side of the river. Look for the warning sign (on river right) above the diversion.

Public river access is provided on BLM lands from immediately downstream of Deep Creek to the Dolores confluence near Uravan. There are developed day use boat launches at Specie Creek, Upper Beaver Creek and Lower Beaver Creek with gravel ramps, picnic tables, and restrooms. BLM encourages use of these areas rather than creation of impacts in sensitive riparian areas. Boaters using the Specie Creek, Upper Beaver Creek, Lower Beaver Creek, Deep Creek, Silverpick, Down Valley Park, Placerville, or Caddis Flats access sites are required to sign river registers.

Please avoid use of private lands near Silver Pick Bridge, Placerville, in Norwood Canyon, Pinon Bridge (Ledges Area), and along the lower San Miguel from Nucla to Naturita. The take-out at Pinon

Bridge is on private land. BLM continues to work with private landowners to acquire additional access when opportunities arise. Public take-outs are available upstream of the Pinon Bridge at the newly constructed Cottonwood and Rock House Recreation sites.

All camping on BLM lands in the river corridor between Placerville and Pinon Bridge must be in signed, designated campsites to help decrease impacts to fragile riparian zones. Historically unregulated use resulted in severe damage to native vegetation, erosion, invasive weed problems, and sanitation problems. Narrow brown carsonite (flexible plastic) signposts with no camping symbols (a tent with a slash through it) and/or obstacles such as logs and boulders identify closed campsites. BLM recently completed construction of some new recreation sites and campgrounds along the river, including the Caddis Flats campground and boat ramp located downstream of Placerville; the Lower Beaver Campground and boat ramp just downstream of the Beaver Creek Day Use site, the Cottonwood campground and boat ramp located off Highway 90 approximately 1 mile upstream of the Pinon Bridge and the Cabin campground and boat ramp located just upstream of the Cottonwood site, both near the Ledges. Campsites are free and available on a first come first serve basis. The campgrounds have campsites, fire grates, picnic tables, cabanas, vault restrooms, and boat ramps. Informational signing will be installed this summer.

Overnight boaters in Norwood Canyon are required to camp in marked designated campsites. Site designation is intended to protect critical riparian areas from overuse and delineate public lands. Overnight boaters are also required to use fire pans or stoves and porta-potties. Non-regulated use in the river corridor eventually degrades resources and negatively impacts recreation experiences. Please help protect the river by following use regulations. Visitors may camp for 7 days only at BLM and USFS sites within San Miguel County and 14 days outside the County. The seven-day limit applies to all sites along the river corridor within BLM's Special Recreation Management Area and Area of Critical Environmental Concern (ACEC), which extends from Deep Creek to Pinon. By John Arkins, Recreation Planner, BLM

HIGHLINE CANAL

The Highline Canal is an agricultural ditch in west Montrose County that moves irrigation water over ten miles from the San Miguel River to farms and ranches near Nucla. It was dug by hand over a century ago, and is truly an architectural marvel. However, the intake structure where water is diverted into the canal presents a challenge to both boaters and fish. A spill-over dam bisects the river to divert water into the canal. The drop-off on the downriver side of the dam varies from 3 to 6'. For boaters, the drop-off alone is treacherous, but there is also significant danger of being pulled into the head gate of the canal. For fish, the dam presents a migration impediment at low water. Cold water fish that have migrated downstream at high water want to move back upstream at lower water levels, but are blocked by the dam.

In response to this situation, the San Miguel Watershed Coalition, working cooperatively with the shareholders of the Highline Canal, hired Jeff Crane (Crane and Associates) to develop a plan to mitigate the impacts of the dam while still ensuring the Highline shareholders their full and legal allotment of water. Essentially, the plan calls for building a ramp-like structure immediately downstream of the dam, so that the drop off is spread over several hundred feet. By placing boulders and fill strategically, pools are created that will allow fish to migrate more easily upstream and get past the dam. Some boulders will also be placed upstream to steer boaters to the left, away from the headgate, where the dropoff below the dam will be minimal.

In the past year, the Colorado Water Trust has led fundraising efforts for the project. We have pledges from the Colorado Water Conservation Board, the Southwest Water Conservation Board, CWT, and SMWC, and are still working on more. A local rancher has agreed to donate all materials. We hope to complete this project in the fall. This will be a truly extraordinary example of cooperation between agricultural water users, recreational water users, and environmental concerns. Everybody wins! By Robert Delves, Executive Director, SMWC

SAN MIGUEL WATERSHED COALITION MONITORING WORK

SMWC has supported a tributary flow monitoring program since 1995. It has grown from measuring 15 to 30 tributaries. Flow levels are recorded monthly from May through September. During 2004, a monthly summer water quality monitoring program was initiated, with support from SMWC partners. Sampling for parameters of temperature, conductivity, ph, and dissolved oxygen are performed.

In addition SMWC is currently funding a new Riverwatch program. The CDOW and the Colorado Watershed Network support metals and nutrient sampling by schools and watershed groups statewide.

Locally, SMWC monitors four stations on the Howard Fork to try to isolate where metals impacting water quality are coming from. This project is funded by watershed partners including USFS, Town of Ophir, and Telluride Foundation. By Leigh Sullivan, River Ranger

TROUT LAKE ECOLOGICAL SURVEY

Trout Lake was chosen last year to be included in a nationwide survey of the ecological health of the Nation's waters. This survey was the result of a lawsuit, which claimed EPA had not met its obligation under the Clean Water Act to determine the "fishable, swimmable" status of the Nation's waters. Trout Lake was chosen thru a problematic survey selection procedure developed by EPA. The lake survey includes 30 lakes in Colorado. The intent of the survey is to determine the lakes ecologic integrity, trophic status, and recreational value.

The ecologic assessment includes an analysis of zooplankton, phytoplankton and diatoms in the bottom sediments and a survey of benthic macroinvertebrates near the shoreline. It will also include a survey of the shoreline habitat and a scan for invasive species along the lake margin and in the water.

The trophic status survey includes a temperature and oxygen profile, measurement of major ions and nutrients and a survey of chlorophyll to determine the amount of algae present. A measurement of water clarity will be done. The water clarity and amount of algae provide indicators of enrichment or excess nutrients in the water. The recreational value study will look for bacterial pathogens and toxins from bluegreen algae. Sampling will occur in 2007 and at five year intervals if funding allows. For more information go to <http://www.epa.gov/owow/lakes/lakesurvey> or contact Jim Saunders at the CDPHE at 303 692 3572. By Dennis Murphy, BLM hydrologist

HIGH ELEVATION LAKE MONITORING

In mid-August 2006, Mountain Studies Institute (MSI) initiated a high-elevation lake survey to understand variability in ionic chemistry, nutrient concentrations, and ecology. This initial survey included 12 lakes in the western San Juan Mountains. The main application is focused on air pollution impacts, but fish stocking effects and invasive species are also of concern.

This work complements USFS and USGS long-term monitoring of several lakes for outlet water chemistry by providing additional information on organic nutrients and biological components. MSI's hopes to use this information to develop biological metrics to track possible effects of increased atmospheric nitrogen deposition caused by vehicle, power plant and agricultural emissions. Also, 2006 monitoring will set the stage for sampling of lakes for mercury in 2007 as part of MSI's EPA funded Air Quality Project. Lastly, MSI will identify one or two lakes to monitor more intensely in the future as a long-term program. San Miguel County and GMUG National Forest contributed financially to this survey. Each of 12 lakes was visited once during 8/22 to 9/13/06. By Koren Nydick

MERCURY MONITORING

MSI recently began a study to assess inputs of airborne mercury to the San Juan High County. Koren Nydick, MSI's Executive Director and project leader,

reports that so far they've collected some snowpack samples,

several weekly precipitation samples from a bulk deposition collector on

Molas Pass, and two sediment cores from mountain lakes. While snowpack

and precipitation samples will be used to understand current airborne

mercury input, the sediment cores will give information on how mercury

inputs to the lakes have changed over approximately 100 years. During summer 2007 I will be collecting zooplankton from 25 lakes and determining the concentration of mercury in these little animals that serve

an intermediate role in the lake food web. Six lakes in the Telluride area will be included in this study.

Funding for this project comes from the US-EPA region 8, but additional support from San Juan and

GMUG National Forests, San Miguel County, and Telluride Institute will allow the inclusion of many more sampling sites. Data on mercury is scarce in our region, but high concentrations in

precipitation measured at Mesa Verde National Park combined with fish consumption advisories for mercury on several reservoirs has raised concerns. A goal of MSI's pilot study is to establish long-term monitoring and additional studies on the source and effects of airborne mercury. By Koren Nydick, MSI

AQUATIC LIFE

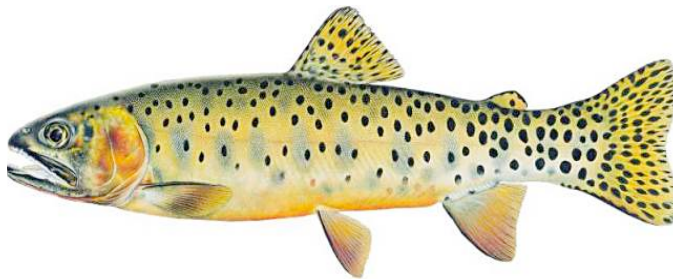
NATIVE TROUT RECOVERY!

Widespread introductions of non-native trout over the last century have limited current distributions of Colorado River cutthroat trout (CRCT) to primarily isolated headwater streams and lakes. Declines in CRCT distribution have been well documented throughout their historical distribution.

In an effort to recover native trout, fisheries biologists with the CDOW and USFS have teamed up to explore potential reclamation projects for CRCT in the San Miguel basin. Dan Kowalski (CDOW), Chris James (USFS), and Pauline Adams (USFS) are working in collaboration with SMWC to identify funding sources for possible native trout recovery projects. Goals of both agencies are to assure the long-term prosperity of CRCT throughout their historic range by establishing self-sustaining populations. (Conservation Strategy for CRCT in the States of Colorado, Utah, and Wyoming, 2006).

One project of consideration is repairing the dam at Priest Lake to bring the water level back up to support a fishery. Priest Lake has easy public access and could provide excellent recreational fishing and educational opportunities.

Another potential CRCT reclamation project is in the upper Fall Creek watershed, above Woods Lake. Work is currently proposed to construct a fish barrier at the outlet of Woods Lake to prevent migration of non-native fish into Woods Lake. Other phases of the project are being reviewed and considered this summer. Public comment will be solicited for activities on public lands in the near future. Stay tuned. By: Pauline Adams, USFS Fisheries Biologist



Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*)

FISHING THE SAN MIGUEL RIVER BASIN IN 2007

Fishing opportunities this year in the San Miguel basin should be excellent. Although 2007 appears to be another below average precipitation year, the basin is better off than it was during the extreme drought several years ago and fish populations are improving.

CDOW will plant over 140,000 catchable and fingerling trout in area waters for anglers to pursue. The San Miguel River between Placerville and the Pinon Bridge will receive 20,000 fingerling brown trout, 10,000 fingerling rainbow trout, and 6,000 catchable sized rainbow trout. The San Miguel above Placerville, including the South Fork will be stocked with 10,000 fingerling Colorado River cutthroat trout, 10,000 fingerling brown trout and 4,000 catchable rainbow trout.

For those who prefer flat water fishing, Miramonte Reservoir was stocked with 50,000 fingerling rainbow trout in early May and 10,000 fingerling brown trout in June. Trout Lake should live up to its name with 7,000 rainbows being stocked in June, July, and August. Alta Lakes will be stocked with 3,000

catchable rainbow trout in June and July. Applebaugh pond near Placerville will be open to fishing and will be stocked with rainbow trout.

Many high mountain lakes and streams will be stocked with Colorado River cutthroat trout in ongoing efforts to restore the West Slope's native trout to area waters. Efforts continue on developing a brood stock of native Colorado River cutthroats from the San Miguel basin to be used in future restoration efforts. Projects at Priest Lake and Woods Lake are also proceeding to return the native trout to historical habitat there.

CDOW is also working on water quality issues that affect fish populations in the San Miguel River basin including heavy metal contamination, winter icing issues, and water quantity and flow patterns. Many of the factors affecting aquatic habitats should improve in the future and our fisheries should improve!

The daily bag limit for trout is 4 fish with a possession limit of 8. In addition, anglers may take 10 brook trout daily less than 8". The flies and lures only restriction on Woods Lake has been temporarily lifted to allow for bait fishing and increased harvest of brook trout. Special regulations may apply to specific waters. Please consult the 2007 Colorado Fishing brochure for more information or contact the DOW area aquatic biologist Dan Kowalski at (970) 252-6017.

WILDLIFE

SUMMER USFS WILDLIFE PROJECTS

The San Miguel watershed encompasses National Forest lands managed by the Norwood Ranger District of the Uncompahgre National Forest. District wildlife program activities this year will include a variety of habitat and species surveys, and several habitat improvement projects.

During April and May we continued to survey and monitor Abert's squirrel populations on the south end of the Uncompahgre Plateau. This squirrel is highly associated with mature and old growth stands of ponderosa pine, and is sensitive to structural habitat modifications that can result from timber or fuels management projects. The USFS is interested in locating Abert's squirrel populations and monitoring their response to those management activities.

In May and June, for the 11th year, we are conducting breeding bird surveys in various habitat types on the forest. That information is entered into State Heritage Program databases, State Breeding Bird Atlas surveys, and shared with organizations such as the Rocky Mountain Bird Observatory.

During June and July we will also be completing surveys for the northern goshawk within certain District project areas. These surveys are necessary to determine if there are nesting pairs or territories of this sensitive species within proposed project areas so that we can provide input to those projects on protection and conservation.

Another long term monitoring project we will continue is our forest owl nest box project. We have placed 400 nest boxes in suitable habitat within the watershed to attract cavity-nesting owls. We have been successful in documenting the occurrence of boreal owl, flammulated owl, and saw-whet owl. Each year we band between 10 and 30 adult and juvenile birds.

Habitat improvement projects are being implemented for big game and the Gunnison sage grouse. We have been focusing on winter range habitat improvement projects for big game. Thanks to partners such as the Mule Deer Foundation, the Rocky Mountain Elk Foundation, and the Habitat Partnership Program we have been able to roller chop and seed another 450 acres of winter range habitat this year. We will also conduct an 850 acre prescribed burn in the fall within winter range habitat on the Uncompahgre Plateau. The Rocky Mountain Elk Foundation has also provided generous support to implementing our travel management plan on the District. Reducing open road densities and motorized trails has a significant benefit to big game habitat effectiveness, and key to encouraging big game to utilize public lands. The two main project areas this year are the Burn Canyon fire and Red Canyon on the Uncompahgre Plateau.

Our sage grouse habitat improvement project restores sagebrush habitats for this sensitive species. Sagebrush parks in the area near Iron Springs Mesa on the south end of the Plateau are filling in with pinyon and ponderosa pine trees. We will use hand crews with chain saws to remove trees and restore areas to sagebrush dominated sites. By Craig Grother, USFS Wildlife Biologist

Something to Flap About

The 7th graders ‘flapped their wings’ as they fought for space in a rapidly shrinking habitat. The exercise was part of a field day at Miramonte Reservoir for the Telluride Middle School. Energized students stood amid sagebrush and pretended to be Gunnison sage-grouse. A rope marked the edge of their habitat. The rope circle shrank as housing developments, overgrazing, and gas drilling rigs impacted the area. This graphically showed how diminishing habitat can cause crowding, which can lead to birds having to relocate or die.

This was just one of the San Miguel Basin Gunnison Sage-Grouse Working Group’s projects in the past year. The group also wrote three successful grants that will provide funds for habitat protection. In addition, Leigh Robertson, the working group’s coordinator, wrote grants to put on a Sage-grouse Summit in 2008 and for a tamarisk removal project in Dry Creek Basin.

CDOW biologists transplanted a number of grouse from Gunnison to Dry Creek Basin in 2006 and 2007. This spring, two of the males transplanted last fall were seen performing their courtship display—an improvement over last year when no male grouse were spotted on leks (courtship grounds) in Dry Creek Basin. The 2007 grouse numbers seem similar to 2006 based on this spring’s lek counts.

In an attempt to improve habitat in Dry Creek Basin, we’ve been working on a project to provide wet meadows for the grouse. Jim Garner with CDOW supervised installation of solar pumps to existing water wells. The next steps include laying irrigation pipe and planting native seeds.

We would like to thank the following organizations for their support in funding these projects: Black Canyon Audubon Society, BLM, CDOW, EnCana Oil and Gas Co., San Miguel County, TNC, The Telluride Foundation, Intermountain West Joint Venture, and Ducks Unlimited. Leigh has developed a website to provide information on the working group and the grouse in San Miguel County. To learn more, please visit: <http://www.freewebs.com/sanmiguelssagegrouse>. By Leigh Robertson



Jim Garner teaches 7th graders about grouse on a Telluride Institute-sponsored field trip.

WILDLIFE

Rare and Declining Species

The 2005 Watershed Report Card included four species: the Gunnison sage grouse, bald eagle, Canada lynx, and river otter. There is no pertinent new data or changes in the data available for the bald eagle or river otter from 2006. Updates follow for the Gunnison sage grouse and Canada lynx.

As stated in the 2005 Report Card, the Gunnison sage grouse was considered a candidate species for listing under the Endangered Species Act, with a decision planned for possible listing as threatened or endangered in March 2006. On 4/12/06 the US Fish and Wildlife Service announced that the Gunnison sage grouse is “not warranted for listing” as threatened or endangered. This decision generated several appeals to list the bird as threatened, all of which were denied. Following the appeal process, a lawsuit was filed in US District Court for Washington DC challenging this decision.

Until this lawsuit is finalized the Gunnison sage grouse will continue to lack any protection under the Endangered Species Act. However, local County, State, and federal government agencies continue to provide protection for the bird and its habitat under their respective land use codes, laws, and regulations. The Gunnison sage grouse continues to be a species of concern in San Miguel County, and is listed as endangered by the CDOW, and listed as sensitive by the USFS and BLM. Species and habitat protection and management efforts will continue to be emphasized within the San Miguel Watershed to meet the objectives of the Rangewide Conservation Plan.

There are no significant habitat losses or degradation reported within the Watershed. However, several new conservation easements have been established on private lands within the watershed that will help protect existing habitat from future development.

In 2006 the CDOW estimated 60% of the suitable habitat within the San Miguel watershed was utilized on a regular basis. Monitoring indicates that this estimate remains accurate. However, spring lek counts show a shift in distribution.

The Report Card lists oil and gas and residential development as the primary threats to Gunnison sage grouse within the watershed. The San Miguel Basin working group explored this issue further and has also identified livestock grazing, motorized recreation, predation, and west Nile virus as additional threats to the local population. Some threats are possible to influence while others are beyond management control.

Habitat conditions improved in 2006 with another year of good precipitation. A wet summer and fall provided moisture favorable to native plant growth and reproduction, improving plant cover throughout the area. This moisture also provided water for Gunnison sage grouse and other species in areas that have been dry during recent drought years.

The CDOW, USFS, and BLM have completed several habitat improvement projects for Gunnison sage grouse. CDOW completed brush-beating and seeding projects on the Dry Creek Basin State Wildlife Area. USFS and BLM implemented projects to remove pinyon and juniper trees that are encroaching upon sagebrush habitats to restore sagebrush-dominated habitat for sage grouse.

Population numbers based on established lek counts indicate a stable number of Gunnison sage grouse in the watershed. A shift in distribution shows an overall trend toward higher numbers of birds in more confined habitats.

The lynx remains listed as threatened by the US Fish and Wildlife and is protected under the Endangered Species Act. In Colorado, the Canada lynx is listed as endangered. In May of 2006 the US Fish and Wildlife Service and USFS completed an Amendment to the Canada Lynx Conservation Agreement, which designated lynx habitat as occupied or unoccupied on National Forests in the northern and southern Rocky Mountains and Cascade Range. National Forest lands within the San Miguel Watershed are included in the GMUG National Forest and are designated as occupied habitat. The Recovery Plan further designates the Southern Rocky Mountains as a Provisional Core Area, an important component for recovery of this species.

There have not been any substantial changes to the amount or connectivity of habitat available within the watershed. However, there is growing concern over the scale and intensity of private land development on the south end of the Uncompahgre Plateau near Dallas Divide and the likely effects this will have on the ability of lynx to move between the Uncompahgre Plateau and the San Juan Mountain range at the Mount Sneffels Wilderness. Loss of this linkage zone could further isolate the Uncompahgre Plateau from suitable habitat in the San Juans.

The Report Card stated that available habitat is "not completely occupied". Canada lynx are a wide-ranging species that occur in low densities. Highly developed areas and intensive use within suitable habitat can reduce or eliminate occupancy. At the present time the percentage of suitable habitat that is impacted in this way is relatively minor. There are no developments present at this time that preclude lynx from traveling between suitable habitat areas. Based on CDOW data, it appears as though lynx are occupying a large percent of the habitat available within this watershed.

The Report Card lists habitat fragmentation due to development/subdivisions as the most significant threat to lynx. Other threats identified in the Lynx Conservation Assessment and Strategy include winter recreation activities, habitat degradation, and widely fluctuating snowshoe hare populations. The CDOW has also documented losses from highway fatalities and shootings, including two cases near Silverton.

The primary suitable habitat types within the watershed include spruce-fir and mixed aspen/conifer forest at higher elevations. This habitat extends on to lands adjacent to the north, south, and east of the San Miguel watershed. In general, forest habitat conditions are good with some of the larger blocks of habitat protected by the Mount Sneffels and Lizard Head Wilderness areas. Both managed and unmanaged forests are typically mature stands with varying degrees of fire, insect, and disease activity. Recent drought conditions have exacerbated these activities, but overall, habitat conditions are favorable for lynx and their primary prey species the snowshoe hare.

The CDOW closely monitors the lynx population in the San Miguel Watershed. In 2006 researchers documented for the first time that a Colorado-born female lynx has produced kittens. The female cat, born in 2004, gave birth to two males in mid-June. This evidence is a significant milestone for the reintroduction program, which was initiated in 1999. However, the number of lynx kittens born and the number of kittens found in 2006 is down significantly from the previous three years. CDOW biologists

believe that more kittens were likely born but could not be located because their mothers are not equipped with radio collars. The current estimate of lynx in Colorado is holding steady at around 200. Most of them live in the southern mountains, which include the San Miguel Watershed.

Researchers are not overly concerned with this decline. Biologists are not observing increased mortality, and veterinarians do not see indications of starvation. Also, most cats are staying within established territories, indicating a stable social structure. All of this leads them to believe that population is nearing capacity and that further reintroduction efforts will be postponed to prevent disrupting natural reproduction. By Craig Grother, USFS Wildlife Biologist

MIGRATORY BIRDS

Migratory birds which breed in the San Miguel Watershed can provide valuable insight into habitat quality that other animal species cannot. They are particularly sensitive to habitat quality, easy to observe, and some species are closely allied with certain habitat types or vegetation zones. Additionally, migratory birds can indicate problems with habitat fragmentation in the landscape. Perhaps most important is the availability of long term data. There are four Breeding Bird Survey transects which have been established and revisited by volunteers and birding organizations over the past 10-30 years in this watershed. While problems with wintering habitats or migration routes that are out of the San Miguel Watershed can also cause population declines, bird population data is important to consider as one of many contributing factors to watershed health. The bottom line is that when habitat fails to provide adequate food or nesting resources, bird populations will decline. By Amanda Clements, BLM ecologist

VEGETATION

The Uncompahgre Field Office of the BLM has been monitoring the effectiveness of rehabilitation efforts on the 2002 Burn Canyon Fire. To date, rehabilitation measures have been effective in achieving perennial plant canopy cover and basal cover values similar or greater to levels found in unburned areas. The control area, which was not rehabilitated did not achieve these levels three years post burn.

Seeding has also proven to be effective at reducing the level of weeds in the burn. Preliminary results suggest that seeding is essential to reestablish sagebrush in burned areas. By Dean Stindt, BLM

2007 TOP FIVE WEEDS TO WATCH FOR

If you look hard enough for something you generally find it, whether you want to find it or not. In 2007 the San Miguel County Weed Control crew will be redoubling efforts to find a few species of non-native, invasive plants (WEEDS) believed to be uncommon or unknown in the county- even as they fervently hope there are no plants to find.

If the targeted plants are located we hope to find them only in a few, small, isolated locations, where they can still be eradicated. The least desirable outcome of the increased effort would be to discover that plants believed to be non-existent or uncommon are in fact very common in isolated locations not previously observed by anyone who could identify them.

The program is called "Early Detection, Rapid Response" (EDRR) and the search for uncommon weeds across Colorado is on. Crystal Andrews, the State EDRR coordinator, will be traveling the state, working with landowners and local weed managers, with the goal of finding new invaders before they become common. Imagine if the first Canada thistle or whitetop found in the area had been eradicated rather than tolerated! "Next to prevention EDRR is the best method for stopping known invasive plants before they are established", explained Crystal, "The most important step is knowing what to look for and getting a proper ID". The state's web site has current identification information including descriptions and photographs-<http://www.ag.state.co.us/CSD/Weeds/Weedhome.html>. The county's web site will also include photographs and identification materials.

Leafy spurge, Dalmatian toadflax, orange hawkweed, Chinese clematis and purple loosestrife are the species targeted for increased attention here. Four of the five have been observed previously in the county but no uncontrolled populations are currently known to be present. Orange hawkweed has not been previously observed here but similar environments have healthy populations so it's worth a serious search.

- Leafy spurge is green with yellow-green flowers. It contains a milky sap and can have roots 20 feet deep! Although much of the area is vulnerable to this perennial it has only been found twice

in the past ten years- although neighboring Ouray County has a very large population near our northern border.

- Dalmatian toadflax has been found as a contaminant in “wildflower” seed mixes and thrives in wet or dry areas. It has a grey-green leaf, yellow snapdragon like flowers and can be 2-4’ tall.
- Orange hawkweed is closely related to several native hawkweeds- all of which are yellow. It is light green with mostly basal leaves and a 12” seed spike with small orange flowers. It also contains a milky sap. Introduced as an ornamental it is a serious threat to rangelands.
- Chinese clematis is similar to the white flowering native clematis found locally but has bright yellow flowers. It can climb to over 20’ threatening to kill trees and smaller vegetation with its weight and need for sunlight. It is another introduced ornamental that has been planted locally.
- Purple loosestrife is an invader of wetlands, streams, ponds and irrigation ditches. It was introduced as an ornamental and has since caused serious damage to many wetlands across the country. It has been found locally several times in landscape plantings but occupies many acres in Nucla where it is believed to have been planted many years ago.

Many other uncommon species are also on the “hit list” including spotted knapweed, diffuse knapweed and scentless chamomile as well as several species the state has designated for state wide eradication due to small populations and known invasiveness. For more information on EDRR, identification and control please contact San Miguel County Weed Control Program at 970 327-0399. By Sheila Grother, SMC Weed Control Program

COLLABORATIVE WEED MANAGEMENT

In 2005, a Uravan Mill Natural Resources Damage Fund Grant was awarded to Montrose County, the USFS, TNC and BLM for natural conservation and reclamation through weed management in the Uravan area. The Uncompahgre Plateau (UP) Project received grant money from [the National Forest Foundation and the USFS](#) to assist these entities by [developing Collaborative Weed Management Area \(WMA\) Plans and a collaborative treatment program](#). The area of interest determined by the partners was almost a half million acres. In order to develop a site-specific plan, the area was divided up into three WMAs: the Horsefly, Tabaguache and Paradox. The boundaries of the WMAs were developed using natural divides and geographic features, eliminating jurisdictional barriers. Advantages to using this approach include increased cooperation, efficiency, education and effectiveness,

The partners collaboratively established goals, objectives, and priorities for treatment in the WMAs. The main goal is to restore the species, age diversity and quality/productivity of native plant and animal communities by removing or preventing invasive species establishment. The partners are also interested in increasing community, landowner and inter-agency involvement, education and collaboration. It is imperative to develop priorities because limited resources need to be focused on weed species that have the greatest impact on our well being and those more difficult to control if action is delayed. Weeds with a propensity to spread to other uninfected areas have been given a high priority for immediate treatment with the goal of containment.

The partners are committed to accomplishing these goals using Integrated Weed Management (IWM) techniques, which involve the use of the best control techniques described for the target weed species in a planned, coordinated program to limit the impact and spread of invasive species. Strategies include: education, prevention, mechanical methods, biological control agents, herbicide methods, cultural methods and general land management practices.

The value of using an IWM approach in a WMA is to make more efficient and effective use of limited resources by creating one weed management plan that focuses time, money and resources toward agreed upon priorities. By pooling resources available from different partners and [eliminating](#) political boundaries, we hope to prevent, contain, reduce, suppress, [or](#) eradicate invasive species.

Since our inception in 2005, the 143,000-acre Horsefly WMA has been inventoried for weeds, data has been compiled using GIS software, and weeds have been treated within the area. The 220,000-acre Tabaguache WMA has been inventoried for weeds, data has been compiled using GIS software, and weeds will be treated in the 2007 field season. The 120,000-acre Paradox WMA has been inventoried for weeds and data has been compiled using GIS software. The UP Project has helped Montrose County Weed Department to develop a website and Cost Share Program for West End residents. The UP Project also

received a grant from the NRCS to assist private landowners in the Ute area treat spotted knapweed in the 2007 field season. By Pam Motley, Uncompahgre Plateau Project

TAMARISK CONTROL WORK

The UP Project also retreated tamarisk on approximately 12 miles of San Miguel River tributaries that had received initial tamarisk treatment from TNC. The focus areas for treatment were the lower portion of Dry, Naturita and Hamilton Creeks. Sprouting was found on about 50% of treated tamarisk on average. This retreatment was implemented by Montrose County, coordinated by the UP Project, and funded by BLM. More treatments are planned as funding becomes available. By Amanda Clements, BLM ecologist

PRESCRIBED BURNS SCHEDULED FOR REGION

Crews from the BLM Uncompahgre Field Office and the GMUG Forests conducted several prescribed burns in west-central Colorado this spring. Burning began in April and continued while weather stayed cool. Treatment areas in San Miguel Watershed, in the Norwood/Nucla Area are:

Basin: 100 acres, project area located 20 miles north of Norwood

Hanks Valley: 150 acres, project area located 16 miles northeast of Norwood and 8 miles northwest of Sanborn Park

Mailbox Park: 200 acres, project area located 9 miles northwest of Norwood and 8 miles east of Naturita
Coal Canyon: 200 acres, project area located 6 miles northwest of Naturita

Fuels being treated in these areas range from pinyon-juniper at the lower elevations to ponderosa pine with a mountain shrub understory at higher elevations. The main objective of these prescribed fires is to reduce dense vegetation to lessen the chance for catastrophic wildfires. These burns will also improve wildlife habitat, regenerate new growth and discourage pine beetle reinfestation in affected areas.

Weather conditions are closely monitored, and burns are only initiated if conditions are within established parameters for safe and effective fires. Each prescribed burn conducted by the agencies has gone through an environmental analysis and has a detailed fire plan developed in advance, along with appropriate smoke permits obtained from state agencies.

The smoke from any wildland fire can be a significant source of air pollution because fire is a natural combustion process that releases air pollutant emissions. The amount and size of emissions depend on the size and intensity of the wildfire. Prescribed fires give managers the greatest control over the size and intensity of the fire because they can time and plan the burning conditions under which they ignite, and can use ignition techniques that reduce emissions. Prescribed fires provide the greatest management flexibility in controlling smoke production and impacts in smoke-sensitive and high visibility areas. Fire managers must consider the potential impact to air quality in developing prescribed burn plans. Burns can only be conducted if established federal and state standards for air quality can be met or mitigated in an acceptable manner. Prescribed fires are conducted only when smoke dispersal is good, and the amount of emissions and direction of smoke dispersal are monitored throughout the burn. While prescribed burns do impact air quality in the short term, they help reduce the risk of more long-term impacts from larger, more intense wildfires that can burn for longer periods. These uncontrolled wildfires typically cause greater air pollutant emission levels and occur under unfavorable smoke dispersion conditions, which result in more extreme and widespread air quality impacts. Information from Maggie McCaffrey, BLM

WEED WORK

The Norwood and Ouray Ranger Districts of the USFS will continue to work on noxious weed treatments on the Uncompahgre Plateau in 2007. Much of the funding is coming from a grant through the State of Colorado's Natural Resource Damage Fund (NRD), specifically to treat spotted knapweed and houndstongue on the Plateau. Biological control agents for spotted knapweed were released in 2006 near Sheep Creek; follow-up monitoring to determine the success of this treatment is planned in 2007. Additional weed treatments funded through the Habitat Partnership Program and through a memorandum of understanding with Western Area Power Administration (WAPA) will occur in the Hanks Valley area and on the powerline right-of-way. The noxious weed treatments funded by NRD will continue for 3 more years; the treatment on the powerline right-of-way is currently in its 8th year.

The NRD fund is also helping the USFS to finance fence construction in the Clear Creek and Horsefly Creek drainages, specifically for habitat improvement for Colorado River Cutthroat Trout. The fence construction project is scheduled for completion summer 2007. By Kelley Liston, USFS Range

PROSPECT BASIN FENS

The Fen monitoring Program initiated in 2000 in Prospect Basin will continue this summer. Monitoring of the Prospect Basin Fens began in conjunction with Telski's plan to expand skiing into Prospect basin. The summer of 2007 will be Rory Cowie's second year collecting fen data with funding provided by an EPA grant distributed by Mountain Studies Institute in Silverton. The ongoing work in Prospect Basin is being conducted by Dr. David Cooper at Colorado State University. Current monitoring of the five Prospect Basin Fens includes measuring stream flow in and out of the fens, and continuous recordings of ground water levels throughout the fens. Ground temperature, frost depths, and precipitation are also measured throughout the summer. In addition to weekly monitoring, the Fens are part of larger studies on carbon sequestration and cycling.

The ongoing data collection on Prospect Basin Fens aims to help us better understand how these unique ecosystems function within our watershed and throughout the San Juan Mountains. Please remember that Prospect Basin is closed to the public until July 1 for elk calving. By Rory Cowie

Telski Wetland Mitigation

As TSG enters its tenth year of operations under the Consent Decree with the EPA, the possible end of wetland restoration efforts that have commanded so much focus within the Environmental Affairs Department may be in view. To-date, ten of the fifteen mitigation areas (some composed of multiple project sites) have been released from monitoring obligations.

Of the remaining five areas, three should be released by early summer when EPA plans a site visit to review mitigation/restoration success. At that time, it is possible that the remaining two sites (the Prospect Creek Alluvial Fan site and the confluence area of Snowshoe and Skunk Creeks) will also be considered for release, and following submittal of their final reports, TSG's further obligations under the Consent Decree will be reviewed. If it is determined by EPA that all of the objectives of the Consent Decree have been met, then final arrangements will be made for the termination of the Consent Decree and its requirements.

TSG and its staff are proud of the effort required to comply with the terms of the Consent Decree and meet the *criteria for success* established by the project's Work Plan. The efforts of the EPA and TSG will have led to over 40 acres of restored wetland in the upper San Miguel River watershed, which are protected in perpetuity through conservation easements. By Chris Hazen, TSG

Noxious Weed Status

Overall the San Miguel Watershed is in relatively good condition regarding noxious weeds- with a few notable exceptions and threats. In 2003 the Colorado State Weed List was broken into three separate lists.

The **A list** includes weeds that are uncommon or not known to be present in the state but which represent a serious threat if allowed to become established. Plants on the A list are mandatory for control whenever located. The San Miguel Watershed has the following known populations of A list species:

- Purple Loosestrife- present in the Nucla area and recently discovered in the Redvale area (Maverick Draw drainage). This is an ornamental and has also been found twice in Telluride in ornamental plantings.
- Cypress spurge- known to be present in two locations in and near Telluride and in one location near Norwood- all ornamental.

The **B list** includes most of the problematic plants in the watershed. Many of these plants are not common in our watershed and should therefore be treated as A list species locally. These include:

- Spotted knapweed- present on the Uncompahgre Plateau, mostly on USFS property and in small populations throughout much of the east end of San Miguel County. The largest known population is on Hwy 62 and is less than ½ acre.
- Diffuse knapweed- with several small populations located over the past few years and presumably eradicated. No currently active populations are known.
- Leafy spurge- with a large population in Ouray Co. leafy spurge is a serious threat to the area above 8000 feet at the east end of the drainage. Two spots have been located and treated in San Miguel County but it is likely that others are present but not yet located.

- Scentless chamomile, another ornamental, is becoming more common in and near Telluride- although an annual it produces plentiful seed and has become a serious problem in similar locations, in the state.
- Dalmatian toadflax and black henbane are still very rare in the watershed but have been found and treated at various locations.
- Tamarisk- is common lower in the watershed but is limited at this time above Norwood Bridge. Several isolated locations have been discovered at up to 10,000 feet and treated with good success. The lower watershed contains large populations of tamarisk.

Other **B list** species present and common in the watershed include:

- Oxeye daisy- originally used in ornamental plantings but escaped into the wild oxeye represents a serious threat to riparian areas.
- Russian knapweed- common in lower watershed but beginning to be present as high as 10,000 feet in small, isolated populations mostly in disturbed sites.
- Canada thistle- is present throughout the watershed but is most common at higher elevations and in riparian and wetland areas. This is most likely the most common weed in all of Colorado.
- Musk thistle is common from Riparian through Montane but most problematic in disturbed areas such as fires.
- Bull thistle is becoming more common and thrives in nearly all vegetation types.
- Yellow toadflax has been found at the east end of the watershed at elevations to 12,000 feet. It is uncommon below 8000 feet at this time.
- Russian olive often grows with tamarisk in riparian areas and is a serious threat in the lower watershed. It is often found in ornamental plantings near Norwood.

Houndstongue is very common on the Uncompahgre Plateau and is now being found along deer and elk migration routes up to about 11,000 feet. By Sheila Grother, San Miguel County Weed Board

SOILS

SOIL HEALTH – IT’S A MATTER OF ORGANIC MATTER

In the “2005 Report Card: An Ecological Assessment of the San Miguel Watershed,” three factors were considered to determine the overall health of watershed soils: erosion, surface cover, and biological crusts. While collectively these are good indicators of soil stability, it would be valuable to include organic matter, the main ingredient of healthy soils. What constitutes healthy soil? And how can one create or maintain a healthy soil? Soil is a mixture of mineral particles and organic matter of varying size and composition.

The mineral (inorganic) fraction of the soil makes up about 50% of soil volume. It includes small rock particles of varying sizes (sand, silt, and clay); and chemical elements or molecules like iron, zinc, calcium carbonate, sulfates. A combination of near equal parts of sand, silt, and clay particles (a soil’s texture), with a balanced suite of chemical elements constitutes the ideal soil medium. Pure sand does not make productive soil for plant and animal life. Likewise, a soil with high concentrations of salts will not support much plant growth or other biological activity because of the chemical effects of salt.

The mineral fraction of the soil results from the weathering and movement of rock in the locality where the soil forms, although soil can be transported hundreds of miles by wind and water, and deposited. Numerous physical, chemical, and biological processes working over millions of years turn rock into soil. Deeper soils form in the low areas of the landscape, while thinner soils form on the hillsides and hilltops. Furthermore, different geologic materials and climatic conditions combine to create unique soils. A landscape with sandstone as the prominent geologic feature will tend to develop sandy textured soils. A key player in the formation of soil is water, needed for many soil forming processes.

The organic fraction of the soil can be variable and ranges from 1 to 20% of soil volume. **Organic matter** is the dead remains of plant and animal life, in various stages of decomposition. Organic matter is the essential feedstock for living organisms in the soil. The biologic cycling of organic matter and nutrients within soil sustains the web of life that exists on land, and contributes to the creation of new soil.

Most biological activity within soils occurs in the top foot of the soil profile. This surface layer is called top-soil, and is the primary nutrient and water reservoir for plants and other living organisms. Beneath the top-soil are layers called subsoil, typically less nutrient rich because they lack organic matter. The

essentials for life: air, water, and sunlight do not penetrate the subsoil sufficiently to make it biologically productive.

The organic matter in soil provides nutrients to plants and other soil organisms and enhances the soil's ability to accept and retain water. Organic matter and clay particles in the soil can actually retain water. In addition, mineral soil high in organic matter has good **structure**. Structure refers to the ability of soil particles to bind to each other and form aggregates. Aggregation of soil particles creates porosity, which allows for air and water infiltration and storage. Biological activity in the soil, along with plant growth, fed by the decay of organic matter, creates the "glue" that facilitates particle aggregation, and hence good soil structure. A soil with good structure will have lots of pore space (50% by volume) for water storage, which supplies more biologic potential. Compacted soils have poor water and air infiltration and are unable to store sufficient amounts of water to support good biological activity and plant growth.

A soil with good texture, sufficient depth, and high amounts of organic matter has the ability to provide the needed nutrients and water storage for good biologic activity and plant growth. A fertile soil, with good soil structure, and adequate amounts of water, will support vigorous plant growth. The roots of these growing plants, the leaf litter they produce for ground cover, and the good soil structure created by living organisms increases the soil's stability and resistance to the erosive forces of wind and water, thus protecting the soil's productive future.

The accumulation of organic matter in soil is in essence **carbon storage**. When organic matter decays, carbon is released to the atmosphere. In an era of increased levels of atmospheric carbon dioxide and its potential influence on global climate change, it is important to manage soils so that high levels of organic matter are maintained within the soil, and that plant growth is maximized, because plants sequester carbon. A certain amount of decomposition of organic matter is necessary to provide nutrients to the next generation of living organisms. In the presence of oxygen and water, and with the appropriate temperatures, decomposition of organic matter just happens. If one increases the amount of oxygen entering the soil, as through tillage, then one increases the rate of organic matter decomposition. If one continually harvests the above ground plant growth and exports this carbon from the site, the organic matter pool is not replenished and eventually diminishes, unless an organic matter source such as manure is imported to offset the losses.

High and hot desert soils, common in the San Miguel Watershed, tend to be inherently low in organic matter due to extreme climatic conditions that inhibit plant growth and biological activity. The conditions responsible are: low precipitation, and extremes of temperature. The shrub-like vegetation that dominates desert landscapes produces little annual input of organic residues to the soil. Decomposition of organic matter continues at a slower rate than in more moist climates with similar temperatures.

The mountainous areas of the San Miguel Watershed receive more precipitation, due to higher elevations. Despite a short growing season, plant production is generally high in the mountains below timberline. Increased plant growth increases the amount of organic residues returned to the soil. And with relatively cool summer temperatures the decomposition process is slower in the mountains than it is in the desert. In this case organic matter tends to accumulate.

So what can we do to protect and increase the organic matter content of our soils?

- Encourage maximum plant growth through plantings, proper watering, and nutrient additions. Try to keep the soil covered with growing plants and their dead remains, to reduce soil loss from wind and water erosion.
- Maximize the return of plant residues or other organic materials to the soil. Limit the harvest and export of carbon from the system, unless it is replaced.
- Limit the frequency and intensity of soil tillage operations. Remember, organic matter "burns" in the presence of oxygen.

To summarize: The capacity of a soil to support plant growth and act as a buffer is a measure of its quality. Soil texture, structure, water-holding capacity, porosity, organic matter content, and depth are properties that determine soil health. All soils have limits imposed by geologic and climatic factors. A soil with sufficient capacity to support one ecosystem – rangeland for example – may not be capable of supporting another, such as a cornfield. Measures of soil health include how effectively soils: accept, hold, and release nutrients; accept, hold, and release water; promote and sustain root growth; maintain suitable biotic habitat,

and respond to management and resist degradation. And **organic matter** matters greatly in respect to all of these! By Jim Boyd, NRCS Resource Conservationist

RESOURCE AND RECREATION MANAGEMENT ACTIVITIES

GMUG PROPOSED FOREST PLAN SUSPENDED

Public comment on the Grand Mesa, Uncompahgre and Gunnison National Forest (GMUG) proposed Forest Plan is suspended indefinitely. The GMUG proposed Forest Plan was developed under the 2005 Planning Rule and was released for public review on 3/16/07. On 3/30/07, Judge Phyllis J. Hamilton of the Northern District of California U.S. District Court ruled that the Forest Service's adoption of new planning regulations (2005 Planning Rule) violated the Administrative Procedure Act (APA), National Environmental Policy Act (NEPA), and Endangered Species Act (ESA). Until the Agency complies with the court's order, the Court has enjoined the Forest Service from implementing and utilizing the 2005 Planning Rule.

GMUG Forest Supervisor Charlie Richmond said, "We don't know for sure where we will head with Forest Plan revision in response to the injunction; however, we are evaluating our options for when and how to proceed. Whatever approach we decide to use, the public collaboration and recommendations we have received to date will be integral in our continuing planning activities. Our stakeholders have helped us develop a vision for the Forest for the next 15-20 years, and we need to prepare effective plans to guide and support that vision."

Some of the options under consideration include: "re-initiating" forest plan revision under the 1982 planning regulations, continuing management under the 1983 Forest Plan and addressing any necessary changes through amendment, waiting for the Agency to make the necessary changes to the 2005 Planning Rule to comply with the Court, and continuing with National Forest Management Act (NFMA) planning activities that are independent of the 2005 Planning Rule (e.g. monitoring, public involvement, scientific analysis, etc).

The work that went into developing the proposed Forest Plan, (e.g. the Comprehensive Evaluation Report (CER) and Comprehensive Assessment) provides information about current conditions, trends, and key findings for social, economic and ecological components of the Forest. Planning Staff Officer Carmine Lockwood stated, "Regardless of which option(s) we choose, these planning documents, and all the work by our stakeholders, provide valuable information that will be useful in future strategic planning activities, as well as project-level planning efforts." Additional information on the Court's ruling and Forest Service activities is available on the GMUG web site (www.fs.fed.us/r2/gmug/). By Anne Janik, USFS

HEALTHY LANDS INITIATIVE

The BLM recently announced a new program-the Healthy Lands Initiative, a new concept for meeting emerging challenges in managing natural resources for continued multiple use with flexible, landscape-level approaches. The President's 2008 budget requests a substantial increase of \$15 million in funding for BLM to begin implementing the Initiative in six specific geographic areas to demonstrate the new approach. The Colorado Landscape Conservation Initiative will be funded at a level of \$1.3 million, includes 22 counties in SW Colorado, and will focus on sustaining and improving habitat conditions where increases in recreation use, energy development, and population growth are placing more demands on natural resources. In SW Colorado, a primary objective will be to improve Gunnison Sage Grouse habitat.

BLM's Uncompahgre Field Office is anticipating this opportunity by identifying partners and ongoing initiatives to help with initiative implementation. Fuels, fire, and ecology personnel in Montrose and Norwood have begun landscape level planning for the Naturita South vegetation management unit, to be completed later this year. Staff will look for opportunities to improve sage grouse and big game habitat, protect powerlines and other structural improvements from wildfire, and enhance the vegetation mosaic to support the recently completed Norwood Landscape Health Assessment. By Dean Stindt, BLM

REGIONAL SUSTAINABILITY COORDINATOR HIRED

Seeing the big picture facilitates watershed understanding. Local governments gave support to big picture and systems design thinking when they hired the region's first Sustainability Coordinator in January 2007. The Towns of Telluride and Mountain Village, and San Miguel County funded the position and hired Kris Holstrom to begin the rather large task of coordinating regional sustainability efforts.

Kris Holstrom has lived locally for 21 years. She and her family run Tomten Farm, a high-altitude, solar-powered farm on Hastings Mesa. Previously, Holstrom was Sustainability Director for Telluride Institute, working on events including the Ideas Festival and Watershed Education Projects in local schools.

Initial projects have included forming a non-profit to leverage contributions by local governments and the Telluride Foundation. This non-profit, The New Community Coalition, has board members that represent each government and several from the region at large. Holstrom has formed five "Working Groups" in areas critical to long-term regional sustainability. The groups are: Energy, Green Building, Resource Recovery/Recycling, Food Security and Economy, and have been meeting regularly to help identify, prioritize and implement projects to assist in regional sustainability. Kris is developing 1, 2 and 5 year action plans in each area.

"This must, by definition, be a group effort," Holstrom states. "My task is to pull people together within our communities and pool resources and ideas that contribute. We need to consider components of sustainability including economy, environment and culture/social issues. We have a wealth of knowledge and experience in our watershed. I hope to tap into that knowledge and bring folks together to build a sustainable future." She adds, "I believe we have major challenges ahead of us. We cannot continue to live lifestyles that depend on using and often wasting a disproportionate amount of the Earth's resources. It is incredibly exciting to be working to find synergies and to facilitate connecting new information with local knowledge. By pooling talents and vision, and working together I believe we can create an abundant future for our kids and generations to come." By Kris Holstrom

COUNTY AGENDAS

Early in 2007 the San Miguel Board of County Commissioners approved partial funding of an underpass at Society Turn, which will extend the bike path and make passage across Highway 145 at Lawson Hill much safer. Grants and cooperation by regional entities will be needed to complete this important project.

When the Valley Floor valuation came in twice as high as the Town's appraisal, San Miguel County also doubled its contribution to the acquisition and preservation of the most important remaining east-end open space priority.

The County took the lead on petitioning our local energy cooperative, San Miguel Power Association to not extend a contract past the year 2035, until energy suppliers make a commitment to renewable energy sources. All local governments petitioned SMPA to no avail.

Ordinances are rarely passed in the County, but two ordinances have been passed this year; one requires drivers of Off Highway Vehicles on high country pass roads to carry drivers licenses and insurance. This will make enforcement of legal vehicles on pass roads easier across jurisdictions as San Juan and Ouray Counties have adopted or will adopt similar ordinances. The second ordinance of the year is regarding stray sheep in the west end of our County.

On the housing front, we are proud to announce that we have adopted affordable housing impact fees on residential development within the County. These fees will help build a needed community housing fund. The County is working with the Town of Telluride on developing housing on the Gold Run Placer site donated to the County by Idarado.

The County has contributed funds to help with a survey in a step toward regaining access to Silver Pick basin and Wilson Peak. Planning for the Wrights Mesa Master plan is underway with a truly impressive group of task force volunteers. The collaborative sustainability office is open and making great progress. A county wildfire protection plan is being drafted. A childcare task force is in the works to address pressing daycare needs. The county has, after years of discussion, finalized a memorandum of understanding with Montrose and Ouray Counties regarding ways to keep the rural character of Horsefly Road (60X) into the future. By Joan May, San Miguel County Commissioner

Environmental Monitoring

With the acquisition of sub-meter GPS capabilities, the TSG Mountain Operations and Environmental Affairs departments are looking forward to the 2007 field season. New data collection and monitoring is a secondary positive result from the EPA's partial release of TSG and its wetland mitigation monitoring requirements. The refocused staff time will translate into monitoring on the ski area and TSG's stewardship of our public lands. Projects oriented toward improved on-mountain environmental conditions will continue to be addressed as site planning and project identification is approved and completed.

Efforts will center on mapping bike trails (both legal and illegal) and quantifying their environmental impacts. This work was started by the USFS and TSG in 2006, when many trails were discovered/mapped for the first time. Many trails will be closed by the USFS due to their high degree of environmental damage given steep locations and unconventional construction techniques. The construction of trails is an obvious indicator that sectors of the local mountain bike community are looking for riding opportunities that do not otherwise exist. TSG will continue to work with USFS to identify appropriate locations for trails that are oriented to the downhill mountain bike enthusiast. By Chris Hazen, TSG

TELSKI GREEN TEAM

On March 31st, Telluride Ski Resort hosted an Environmental Outreach Day. Telski hosted this event for the past several years under the guidance of the National Ski Area Association (NSAA). NSAA no longer conducts Sustainable Slopes, so Telski's GREEN (Get Responsible Environmental Education Now) team decided to continue with their own environmental outreach day. The GREEN team is Telski employees who are passionate about environment and committed to bringing environmental principles into our daily work lives.

For the Environmental Outreach Day, Telski invited community and guests to take part in a fun on-mountain event, which required participants to visit four stations. At each station, volunteers presented information about green initiatives. The stations focused on biofuels, wind energy, the protected Prospect Basin fens and post-consumer waste and biodegradable products.

After having their "environmental passport" stamped at each station, participants were entered into a drawing at Gorrone Ranch. Because of the generosity of the event sponsors (Telluride Ski Resort, Chaco, Patagonia, and Thorlo) each participant received a prize! Telluride Sports donated the grand prize, a new pair of Rossignol skis. Event organizers, sponsors, volunteers and nearly 70 participants enjoyed a beautiful sunny day on the mountain and learned how we can take care of our planet!

Telski is striving to eliminate the use of disposable petroleum based products and is now using post-consumer waste, biodegradable, renewable pieces in their dining facilities. Products in use include utensils made from potato and corn products, which are completely biodegradable and a renewable resource. Paper plates, cups and bowls are made from sugarcane pulp, a natural byproduct of the sugar refining process. This renews itself annually versus the 30 years it takes for a tree to grow back. Telski is also committed to purchasing and using office supplies and paper products containing post consumer waste. By Elizabeth Howe, Telluride Ski Resort

USFS RECREATION AND TRAILS

The implementation of the Telluride Trails project will be the main focus for the Norwood Ranger District this summer. The project's purpose is to enhance hiking and mountain biking opportunities at the Telluride Ski area. Three priorities have been identified for completion this summer. They include finishing construction of the Prospect Trail, developing a trail sign plan and closing and restoring illegally built mountain bike trails.

Trail construction commenced in the fall of 2005 and continued summer 2006 to complete two trails, in cooperation with Telski and Town of Mountain Village. The Village Trail opened to the public in June 06 and the See Forever trail was finished in August 06. Construction on the 8-mile Prospect Trail began last fall and should be finished by the end of summer 07. The Prospect trail will offer hikers and mountain bikers a very challenging singletrack experience leading to a more remote part of the ski area. The trail starts at gondola St. Sophia and traverses across lift 4 and lift 5 and eventually into Prospect Basin. The trail crosses Prospect Creek near the Cropsy Mill site before it climbs back to the top of lift 10. Once the trail is finished, signs will be installed and the public will be notified that the trail is open.

The second project is to develop a comprehensive sign plan for the existing trail system. In the past, there has been a lack of signs to help guide hikers and bikers trying to follow the free trail map distributed by Mountain Village. The sign plan will provide adequate signage consistent with the trail map. Telluride Trails project funding will pay for signs and installation. Developing a sign plan will be a challenge due to the number of trail intersections and the multidirectional nature in which the trails will be used. Consistent signage throughout the ski area will improve the overall trail experience and encourage users to stay on designated trails.

The last project will consist of identifying, closing and restoring mountain bike trails that have been illegally built at the ski area. The USFS has partnered with Telluride Ski & Golf to close unauthorized trails and stabilize trail corridors to minimize erosion and establish native vegetation. The USFS has inventoried over 20 illegal trails that have been constructed by mountain bikers. Downhill and cross-country mountain bikers have created significant resource damage by building renegade trails that do not incorporate standardized USFS design and construction techniques. The downhill trails have steep alignments that are not built in a sustainable manner and deteriorate very quickly. As the trails become hard to ride due to erosion, users abandon the trails and find other locations to build new trails. The abandoned trails quickly become erosion channels that discharge sediment into local streams and rivers. It will take many years and substantial funding to rehabilitate areas disturbed by unauthorized trail construction. By Scott Speilman, USFS Recreation Manager

COUNTY RECREATION PROJECTS

The Vance Creek Bridge over the South Fork of the San Miguel River is complete. Hikers and bicyclists coming down the Galloping Goose single track from Telluride/Lawson Hill can cross the river and connect to the Sunshine Road, CR 63J, via a new trail, which extends all the way to the historic Coal Chutes. This trail traverses private property, so please stay on the trail.

Open Space Rec staffer Kari Distefano is working toward a 2008 construction-start date for an underpass at Society Turn. The underpass will connect the Town of Telluride's bike path to Lawson Hill and the Galloping Goose regional trail system. Cost is expected to exceed a million dollars, but due to the hazardous pedestrian crossing at Society Turn, the underpass is a priority for the County Open Space and Recreation program.

Down Valley Park's new Park Supervisor, Shannon Watson, takes the reins this spring. Use is increasing at the park, so please check use policies, reservation forms, and the playing field schedule on the website, <http://www.sanmiguelcounty.openspacerec>. A moratorium on general commercial access continues in effect at this time. Commercial use is allowed by reservation and payment of an hourly rate. Maintaining the conservation easement area of the park continues to be a high priority. Please help protect conservation values by staying on the trail, avoiding trampling shrubs and trees, and keeping your pet on leash. The pond and riverbank area living classroom site is available to all San Miguel watershed school districts. Anyone interested in developing living classroom curricula should contact 369-5469. By Linda Luther, County Open Space/Recreation Staff

Trails on Telluride Ski Area

The Telluride Ski Area is approximately 70 percent public USFS land. According to USFS regulations, mountain bikers must stay on designated trails within the ski area. Fragile high alpine ecosystems including wetlands and fens exist on the ski area that the USFS, Telski and Mountain Village intend to protect and preserve. An enforcement agent will patrol the trails to ensure bikers and hikers are using designated trails and not adversely impacting sensitive areas.

For more information regarding the new Telluride Trails, please see the USFS article above or visit a Mountain Village information center or stop by the St. Sophia Nature Center at the top of the gondola on Coonskin Ridge. By Deanna Drew, Telluride Ski Resort

OPEN SPACE PROJECTS

VALLEY FLOOR DAY

May 9, 2007, was declared Valley Floor Day. On every May 9th hereafter Telluride will celebrate the wiring of \$50 million, plus interest to the Court's escrow account and finalizing the condemnation of 570 acres of Valley Floor to be public open space in perpetuity.

This includes approximately three miles of the San Miguel River. This will allow the river to seek its natural course through the valley. This will allow beavers to build and extend their habitat. Migratory and local birds will have sanctuary here. Prairie dogs and coyotes will do what prey and predators do. Lynx will find a safe haven. The elk herd will be able to remain. Sheep Mountain Alliance has played a pivotal role from the beginning and is happy to share this victory for preservation with our extended Telluride community. By Linda Miller, SMA

SAN MIGUEL CONSERVATION FOUNDATION

On 12/19/06, the San Miguel Conservation Foundation accepted the donation of a conservation easement on 534 acres on Hamilton Mesa, approximately 25 miles southwest of Norwood. This was the first of two phases that will ultimately place over 1,000 acres under easement. The owner of the property, Hamilton Land Partnership purchased the property in 1980 and since then has maintained the land as open space and used it annually for hunting.

The easement allows for construction of one residential structure no more than 2,000 square feet, which was built last fall. Gary Hickcox, Executive Director of SMCF enjoyed working with Lynn Warthan and Bruce Duncan, the two managers of the Hamilton Land Partnership. "These guys have a great land stewardship ethic. They are the kind of owners every land trust dreams of working with".

As summer approaches, SMCF again looks forward to another season of heavy use of the Bear Creek Preserve. That use has substantially increased in recent years. Together with the Telluride Open Space Commission we ask for community support for this irreplaceable treasure by being responsible land stewards. We encourage everyone to respect the fragility of this special sanctuary. Please stay on trails, pick up after your dogs and remove all trash.

SMCF is also pleased that Suzann Bridges returned to her position with the Parks and Recreation Department as Bear Creek Ranger. She will continue to run the Jr. Ranger program, monitor weed-infested areas, organize weed pulls, lead hikes for locals and tourists and coordinate with the Pinhead Institute's Bear Creek Land Stewardship program.

Since 1994, SMCF has worked diligently to protect over 6,000 acres throughout San Miguel County. For additional SMCF information, please call 728-1539. By Gary Hickcox, SMCF

OPHIR CONSERVATION PROJECT RECEIVES \$850,000 IN FEDERAL FUNDING

Ophir Valley residents welcomed the news that the USFS allocated \$850,000 from the Land and Water Conservation Fund for the acquisition of land in the Ophir Valley. The money will go towards purchasing mining claims surrounding the town of Ophir that are owned by the Pauls Family. The Pauls Family is working diligently with the Trust for Public Lands, local elected officials, U.S. Rep. John Salazar and U.S. Senator Ken Salazar to complete a multi-year conservation project. Conservation of the Pauls-owned land will protect critical wildlife habitat, maintain recreational access to public lands, protect water quality and help maintain quality of life in the Ophir Valley.

"I am very pleased the USFS is able to provide funds for the Ophir project this year. I have requested these funds through the federal budget for several years and have called on the USFS to make the Ophir project a high priority. These funds will go a long way to ensuring that valuable open space in the Ophir Valley is preserved for future generations. When I toured this land it was clear to me that this spectacular alpine valley was very worthy of protection. This funding is a critical first step for this project," Rep. Salazar said in a press release. For more information about the Ophir Valley project go to www.ophirvalley.com or contact Doug Robotham at the Trust For Public Land Colorado office at 303-837-1414 or 303-929-4199.

COUNTY OPEN SPACE PROJECTS

The County Open Space Commission (OSC) is facilitating the purchase of conservation easements on two properties on Hamilton Mesa west of Norwood. The properties, totaling 2,700 acres, will close in several phases. Both properties contain Gunnison Sage-grouse habitat.

The county's open space program is a competitive criteria-based program in which the county purchases and retires the development rights from willing sellers. These properties are protected by a deed of conservation easement held by a land trust chosen by the owner.

Idarado Mining Company is in the process of conveying ownership of Lewis Mill to San Miguel County. The building is located 3.5 miles above the Bridal Veil power plant in Lewis Basin. The historic building was used between 1889-1911 for the recovery of precious metals. The County has conducted stabilization efforts over the past few years with funding assistance from the State Historical Fund, Idarado Mining, Town of Telluride and Mountain Village. By Linda Luther, County Open Space

WATERSHED EDUCATION

Educational Recreation for All Ages Found at St. Sophia Nature Center

Telski and Mountain Village are ready for the fifth season of outdoor education at the St. Sophia Nature Center. The center offers educational activities and recreation information for families wanting to experience and learn about Telluride's unique environment.

Entirely free of charge, the center offers nature crafts, interpretive hikes and wildlife presentations throughout the summer. Group activities can be scheduled with advance reservations. Local hiking and biking information, trail maps and weather predictions are available from nature center staff. Hours of operation are 9 am until 4 pm, seven days a week. For a schedule of events, check the Mountain Village weekly events flier found at all gondola stations or call the center at 728-7360. By Deanna Drew, TSG

University Centers Offers Field-Based Courses

University Centers of the San Miguel, (UCSM) which serves the residents and workforce of San Miguel Watershed communities with year round college and continuing education courses, will be offering field-based courses in Geology and Environmental Science this summer and fall semesters with outdoor labs. UCSM's college courses are taught by local residents who are adjunct faculty of accredited colleges and universities. For those who do not need college credit, UCSM welcomes lifelong learners to college courses at a reduced tuition rate. The field-based courses are especially popular with those interested in learning more about our local environment and who enjoy experiential learning. For further information contact the UCSM office at 970-369-5255 or email highered@telluridecolorado.net or go to www.ucsanmiguel.org By Sarah Silver

Rock Stories of the San Juans: Explorations of the Geology of our Mountains and Watershed will begin July 9th with a course introduction and then meet for weekly field excursions on Tuesday mornings for six weeks. The Instructor is geologist Austin Zinsser, MS. This course can be taken for credit through Mesa State College or as a non-credit lifelong learning class, or can be enrolled in on a per week basis to accommodate visitors. For details call UCSM at 970-369-5255 or email ucsm@telluridecolorado.net By Sarah Silver

CSU Offers Native Plant Master Trainings at Priest Lake

San Miguel/west Montrose Counties Cooperative Extension office will offer two sessions of the award winning Native Plant Master course at Priest Lake this summer: June 2, 9, and 16 and again July 14, 21, and 28. Curricula include plant identification, ecological relationships, and human uses of native plants. To apply or receive a brochure contact Yvette.Henson@colostate.edu or call the Extension Office at 970-327-4393. Registration is limited.

BEAR CREEK STEWARDSHIP COURSE

Bear Creek Preserve, a local treasure, imparts wonder unique to wild landscapes that grows and deepens with one's knowledge of the land and its species. Pinhead Institute proudly invites the citizens of Telluride to re-discover Bear Creek Preserve through the Bear Creek Stewardship Course, focusing on insects, mammals, fish, and wildflowers. Each of four course units will have a classroom component, held Thursday evenings at the Wilkinson Public Library from 5:45 to 7:45 pm, followed by field studies held on Saturday mornings in the Preserve. Information and registration forms for the month long course are at Telluride Parks and Recreation Department office in Town Park, on a first-come, first-serve basis. Course enrollment is limited to 30 students, aged 18-years old and older. The course is sponsored by the Telluride Open Space Commission, so stewards are asked to volunteer some time during summer in the Preserve. The enrollment fee is \$50 for (students may earn 1-3 graduate level credits through Adam State College for

an additional fee.) Scholarship is available. Email inquiries can be sent to ramona@pinheadinstitute.org or call Ramona Gaylord at 970.728.8660 for more information.

Pinhead Town Talk 2007 Schedule

For more information call 970-708-0004 Or visit www.telluridescience.org

Pinhead Town Talk in Partnership with MountainFilm

Wednesday, 6/28/07, 6:00 – 7:30 p.m., Palm Theater, *FILMS* TBA, *PRESENTATION* “Quantum Computers Coming to a Store Near You? Dream and realization of the computing revolution”

By Rainer Blatt, PhD, Institut f. Experimentalphysik, Universitaet Innsbruck

Tuesday 7/3/07, 6:00 – 7:15 p.m., Telluride Conference Center in the Mountain Village, *TBA*

Tuesday 7/10/07, 6:00 – 7:15 p.m., Palm Theater, *TBA*

Tuesday, 7/17/07, 6:00 – 7:15 p.m., Conference Center, *PRESENTATION Title TBA [About oceans, coral reefs, and climate change]*, By Julie Cole, PhD, University of Arizona Assistant Professor, Geosciences geoscientist and member of the Institute for the Study of Planet Earth’s Global Change Committee

Tuesday, 7/24/07, 6:00 – 7:15 p.m., Conference Center, *PRESENTATION* “Schrödinger’s Children and How Quantum Theory Revolutionized Chemistry”, By Kieron Burke, PhD, Professor of Heretical Physics and Computational Chemistry at University of California, Irvine

Tuesday, 7/31/07, 6:00 – 7:15 p.m., Conference Center, *PRESENTATION* “What Doctors and Nurses Fear Most? Being a Patient in a Hospital: The Emergence of “Patient Safety”, Paul Barach and Dr. David Mayer, University of Illinois Medical Center Associate Professor and Associate Dean for Education at UIC Chicago College of Medicine

Tuesday, 8/7/07, 6:00 – 7:15 p.m., Conference Center, “Is it Science? — Global warming, intelligent design, the cosmic anthropic principle and Einstein’s moon, Michael E. Kellman, University of Oregon Professor of Theoretical Chemistry & Physical Chemistry, 2007 R. Stephen Berry Lecturer

Tuesday, 8/14/07, 6:00 – 7:15 p.m., Conference Center, “The Science of Sound: The acoustics of musical instruments”, James Martin, Sandia National Laboratories, Albuquerque, NM

Tuesday, 8/21/07, 6:00 – 7:15 p.m., Conference Center, “Nuclear Power and Climate Change: Choosing a Course Beyond Emotions”, By R. Stephen Berry, James Franck Distinguished Service Professor Emeritus at University of Chicago and a member of the National Academy of Sciences

Pinhead Punk Science 2007 Schedule

For more information call 970-708-0004, Or visit www.telluridescience.org

A Program for Kids, By the Climbing Rock in front of the Conference Center

Tuesdays in Summer 5:00 -5:45 pm, Free admission, free hot dogs, and lemonade

Tuesday, 7/3/07, 5:00 – 5:45 pm, *PRESENTATION* “Water Bugs: Scan, Scoop & Scope” , By Chester Anderson, Scientist, B.U.G.S. consultant

Tuesday, 7/10/07, 5:00 – 5:45 pm, *PRESENTATION* TBA

Tuesday, 7/24/07, 5:00 – 5:45 pm, *PRESENTATION* TBA

Tuesday, 7/31/07, 5:00 – 5:45 pm, *PRESENTATION* TBA

Tuesday 8/7/07, 5:00 – 5:45 pm, *PRESENTATION* “**Science of Explosions: Firecrackers, Cannons & Rockets**” By John Straub, PhD Scientist, Boston University

Tuesday 8/14/07, 5:00 – 5:45 pm, *PRESENTATION* “The Sound of Music: Tap, Bang & Twang”, By Jim Martin, PhD Scientist, Sandia National Laboratories, Albuquerque, NM.

Tuesday 8/21/07, 5:00 – 5:45 pm, *PRESENTATION* “Hot and Cold, Light and Heavy”, By Steve Berry, PhD Scientist, University of Chicago

WATERHSED REPORT CARD LECTURE SERIES

The Telluride Institute, with SMWC, New Community Coalition, Wilkinson Public Library, TNC, and San Miguel Historical Museum, will be presenting the 2007 Watershed Report Card Series in October.

This year, the Report Card Series of lectures will be integrated into the Telluride Institute's Ideas Festival. The month of October will be filled with events and talks to inform our community about the state of our watershed, and what we can do to improve our report card grades. Please check the Institute's website at www.tellurideinstitute.org for more information. By Ashley Boling, TI

TELLURIDE INSTITUTE'S WATERSHED EDUCATION PROJECT

Telluride Institute's Watershed Education Project (TI's WEP) works to provide schools in the San Miguel Watershed educational experiences aimed at cultivating a deeper understanding and appreciation of the Watershed. As students observe, investigate, and play in the rivers, mountains and high deserts of the Watershed, they come to understand the complex connection between their lives and the local environment.

This school year TI's WEP offered teachers of the 3 school districts an educational menu, providing them the opportunity to choose units to be integrated with state standards and educational curriculum. WEP coordinators work to strengthen and continue existing programs, and also work with school administration and teachers to create Watershed based curriculum. In future years, we hope to develop a sequence for the schools in which students start their experiential education with TI's WEP in preschool or kindergarten and continue it yearly until graduation. Teachers and students that have participated in WEP programs agree that place based, hands-on educational experiences significantly enhance a student's ability to progress through life with an understanding and respect for the natural environment, and allow students to grow into stewards of their community and planet.

Fall 2006 included the "Ribbons of Life" unit for the fifth grade Telluride and Naturita classes. Students learned general watershed information and concepts, in the classroom, followed by a day at the Down Valley Park where guest watershed specialists and WEP coordinators focused on conservation of water and riparian zones, the importance of ponds and wetlands, water quality, and aquatic fish and insects.

A collaborative mining unit between TI, Nucla High School and Telluride Mountain School, was a huge success. Seventh grade students from Nucla High School attended class with Mountain School students, where local historian Johnnie Stevens shared knowledge about cultural, economic, social and environmental impacts of mining. Students spent the afternoon at the Idarado Mine, touring the old mining site and discussing public health and environmental issues. On the second day Telluride Mountain School students traveled to the west end to visit a coal mine site with Nucla seventh grade students and hold a mining debate at the Nucla High School. Students from both schools represented five different interest groups in a hypothetical debate about a new coal mine. The mining unit was a positive educational experience because students from different ends of the watershed were able to share ideas and engage in dialogue concerning meaningful environmental, economic and social issues facing their communities.

Other West End units included a fire unit for tenth grade Nucla High students. The unit provided education about the varying roles fire can play in urban and wildland watershed areas. Josh Munson, from Crown Canyon Archeological Center contributed by discussing the historical and cultural context of fire. He brought bow drills for students to start their own hand made fire. Eric Brantingham, USFS, spoke with students about the importance of fire education and potential professional opportunities in the fire field.

TI's WEP kicked off 2007 with educational puppet show performances featuring local places, plants and animals for all preschool through first grade students in the Watershed. This year's puppeteers, Ashley Boling, Kate Tallerday, Darcy Craig and Jonathan Barfield, traveled the watershed to provide young students information on environmental topics.

This spring included 2 six-week wildlife units for seventh graders at Telluride Middle School. Students learned about native and non-native species during several field days that included a tamarisk pull, sage grouse field trip, and flora and fauna excursions in Bear Creek. TI's WEP worked with Telluride Middle School's eighth grade class on a six-week sustainability unit, where students researched local issues including energy, water, waste, and food/agriculture. Field trips included a trip to the Buckhorn Ranch in Colona, a 12,000 acre property with a 51' grow dome, where student learned about organic and sustainable food production systems. Students also visited Kinikin Heights Natural Foods, where rancher Jeff Downs practices sustainable and symbiotic methods to raise goats, pigs, cattle and chickens. The sustainability unit toured Steeprock Jointery to learn about green building and alternative energy. The unit finished with students presenting their ideas to a board of local sustainability experts, and continuing to educate the community and visitors.

This summer three Norwood High School students and two Telluride High School students will participate in the Bridal Veil Living Classroom (BVLC) Summer Science Program. WEP Coordinator Alessandra Jacobson offers this course biannually, with official college accreditation from Mesa State. BVLC enables sub-alpine biodiversity to be monitored by offering high school students a summer independent study in Bridal Veil Basin. The Bridal Veil Living Classroom contains the two highest biodiversity monitoring plots in the Watershed.

Together with the BLM and the USFS, TI's WEP will offer the Real Science Summer Internship Program for the fourth summer. Two Nucla students will participate in this six week internship based in the west end of the Watershed. The interns will work together for several different science, environment, and watershed professionals in the field. The interns will present their experiences at a public Watershed Coalition Meeting in the fall.

In partnership with the Telluride Academy and West End Schools, TI's WEP provides a summer camp for West End sixth and seventh graders. This week long camp offers students a chance to learn kayaking skills, rock climb, hike on local trails, participate in a low ropes course in Norwood, and learn about astronomy with a high powered telescope and gain new knowledge about their surrounding local environment. This year, students will take part in a 3 day and 2 night instructional kayak course hosted by San Juan Rivers Paddling School. This partnership provides students with an affordable adventure education and an opportunity to gain a sense of environmental stewardship.

The Watershed Education Project thanks all the partners that help fund our programs and the local experts that enhance them. For more information please call 970-728-8312 or email Darcy Craig at Darcy@tellurideinstitute.org

HANGING FLUME HISTORY

The desire for gold has always influenced history, as with the history of the hanging flume. In the late 1800s there was a major gold strike on Mesa Creek Flats below the confluence of the San Miguel and Dolores Rivers. The Montrose Placer Mining Company, composed of St. Louis capitalists and managed by Col. Turner bought 6.5 miles of mining claims there. Gold was there, but no one was sure of the quantity. They needed a large supply of water to wash the gold free from the gravel beds. Hydraulic placer mining consists of washing out soil under pressure and catching the gold as it goes over a riffle board through a sluice box. The water was 13 miles away, so they brought water to the project with a remarkable engineering project known as the Hanging Flume.

Construction began above Uravan in 1889 with a canal from the San Miguel River. The canal continued until it reached the rimrock below Uravan. The flume was constructed of wood, 6' wide and 4' high. They used 1.8 million feet of lumber. The Montrose Placer Mining Company established a sawmill at Pine Flats, above Buckeye Reservoir, to cut flume lumber. Only the best quality lumber was used, mostly 2" pine boards. Lumber was hauled by six horse teams from the sawmill to the construction site. During one haul the brakes failed and the runaway wagon ran over and killed six horses. Another account says they began construction at the downstream end to allow the lumber to be floated down to workers.

The flume is a three-sided structure open at the top, resting on brackets bolted to the cliff with bolts driven 18" into the rock. Additional support came from a brace extending diagonally down from the outer edge of each bracket to a groove cut into the rock wall. The lower end of each diagonal brace was also anchored to the wall with a spike, driven through the wooden brace deep into the rock. Where the rock wall projected out brackets wouldn't work so the flume was swung from overhead supports; metal rods affixed to the outer edge of the flume and anchored into the rock above.

To survey the flume, the rod man sat in a rope swing called a boson's chair, lowered from the top of the cliff, and marked the flume line on the sandstone wall. The construction gang of 12 men followed the line marked by red paint, and erected about 250' per day when conditions were good. Their pay was \$2.50 per day and board - good wages for that time. Local labor was used and surprisingly enough there were no confirmed casualties. Wilson Rockwell's book, Uncompahgre Country, tells of one casualty, a swimmer in the Dolores River drowned.

Mrs. Ellen Peterson's article in the Colorado Historical Publication reports: "Billy Albrecht, in helping to lower lumber from cliff top, ventured too close to the edge and slid off. His companions, for a moment, were too terror stricken to even look down. When at last they summoned the courage to peer over

the precipice, they saw Billy. He was sitting precariously on a narrow ledge only a few feet below, in the act of lighting his pipe - to steady his nerves, no doubt.”

Can you imagine what a task it was to build the cliff-clinging flume 100 to 150’ above the river and 250 to 500’ below the summit? The flume was built a section at a time. As it progressed the flume bed served as a roadway on which men and materials could move to the construction site. A steel scaffold attached to a mine car extended out in space, providing a platform to stand on while drilling holes in the rock face. The driller’s weight was offset by boulders piled in the mine car. After one section was completed the tracks and mine car with scaffolding would be moved to the next section. The lumber was either pulled up from the bottom or lowered down from the top of the canyon with ropes.

The flume was firmly built, able to support lumber stacked 13’ high during construction. Once a boulder fell from the top of the cliff, struck the flume and destroyed a section 20’ long, snapping timbers as if they were match sticks, but did not loosen or damage any other section.

Charlie Templeton was the flume caretaker. He walked the flume each day during operation to keep it free from trash, which might build up a dam and tear out a section. His fringe benefits included an ample supply of mountain trout.

The finished project was four to five miles of ditch and eight miles of flume. It took two years to complete, 1889-1891, and cost \$100,000. The flume carried eighty million gallons of water every twenty-four hours during operation, allowing the placers to work 2800 cubic yards of gravel per day.

The flume itself was a success, but the mining project failed and was abandoned in 1893. The gold was too fine to be recovered under hydraulic pressure even with the use of quicksilver. The gold in Mesa Creek Flats is known as “leaf gold” or “flour gold”. The investment was a complete loss. According to some stories, the promoter of the hanging flume committed suicide after the financial failure. After the flume was abandoned, local ranchers used the lumber for ranch buildings. Later Standard Chemical miners scavenged lumber for tent houses at mine camps.

After more than a century parts of the flume are visible from the road as you drive to Gateway. The wind, rain, sun, and rockslides will take their toll and in time all evidence of this remarkable enterprise will vanish and only stories will remain. By Marie Templeton. All articles used to gather this information available at the Rimrocker Historical Museum in Naturita

Message from the Executive Director: 2007 promises to be an exciting year for SMWC. Our guiding principle is to enable all watershed stakeholders to communicate, collaborate, and accomplish together what we can’t accomplish alone. Our 2007 goals are:

1. Watershed Health Report Card UPDATE– Incorporated into this newsletter.
2. CCC Ditch Diversion – To be constructed fall 2007.
3. Howard’s Fork – Continued partnership to help clean up remaining mining toxins.
4. River Ranger – Continued sponsorship of the River Ranger program.

These important projects are made possible by your financial support. If you are not yet a member, please join. If you are a member, THANK YOU, and please renew your membership. By Bob Delves
SAN MIGUEL WATERSHED CONNECTION SUPPORTERS INCLUDE: BLM, USFS, Telluride Foundation, San Miguel County, Towns of Telluride and Mountain Village, Art Attack, The Nature Conservancy