scans, and ophthalmoscopic examinations. The therapy implemented depends on the stage of the cancer at the time of diagnosis. Stages are classified as intraocular, extraocular, or recurrent. The three most common treatments are surgery, which may include enucleation, cryosurgery, or photocoagulation, radiation, and chemotherapy. The prognosis, again, depends on the stage of retinoblastoma when the treatment was implemented. Follow-up exams are extremely important in order to watch for other cancers that may develop as a result of the gene abnormality or the treatment that was used for retinoblastoma. These cancers are referred to as second nonocular tumors and the most common form is osteosarcoma.

Social Sciences

What Citizens Don't Know Can Hurt Them [AFS]

James J. Barrett
Beartooth Alliance, Cooke City, MT

Back in grade school I recall hearing the phrase, "Ignorance of the law is no excuse." The assumption was that by our knowledge of the law we would only knowingly commit crime, and in turn know if we were victims of crime. Though our understanding of law is most often common sense, i.e., we don't steal things, we don't assault others, etc., there are some laws which defy common sense. When Noranda/Crown Butte began exploration at Cooke city, Montana, the idea of a large gold mine did not seem possible. After all, who would put a huge industrial complex on the border of the world's first national park? The General Mining Law of 1872 declares, "hard rock mining is the highest use of public lands" and hard rock miners like Noranda/Crown Butte have the "exclusive and preemptive right to mine." Most people don't know about this law. When people become aware of it, almost overwhelming disdain and outrage at its present day absurdity is the reaction. This law should be reformed.

Public Attitudes Toward Mule Deer in an Urban Environment in Eastern Montana [TWS]

Duane Fritzen
Biology Dept., Montana State University, Bozeman

As part of a broad study to develop management strategies for mule deer (*Odocoileus hemionus*) inhabiting strip mine reclamation and urban habitats in the vicinity of Colstrip, Montana, an effort was made to document, via mail survey, public attitudes toward deer inhabiting the urban area. Deer-human conflicts in Colstrip have increased during recent years as an increasing number of deer have utilized forage resources, including shrubs and gardens, in the city. Results indicate that although deer are causing

significant problems in Colstrip, tolerance of deer within the city is quite high. Additionally, although support for increased harvest of deer in the area is very high, attitudes regarding hunting practices suggest that hunter harvest may not be a practical management alternative. Successful implementation of wildlife management strategies requires public support. Documentation of public attitudes toward mule deer in Colstrip proved useful for assessing (1) the scope of the urban deer problem, (2) the feasibility of hunter harvest as a means of reducing deer-human conflicts, and (3) the need for public education programs to gain support for alternative management strategies.

Perceptions of Wildlife Damage to Forage Crops on Lands Controlled by Farmers and Ranchers in Montana [TWS]

Lynn R. Irby, John Saltiel, Walter E. Zidack, and James B. Johnson
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By using a mail survey of 2,200 randomly selected farms and ranches, we attempted to determine the perceived damage to forage crops in Montana by wild ungulates. The 1120 respondents indicated that wild ungulates were present on 97 percent of the agricultural operations in Montana. White-tailed deer (*Odocoileus virginianus*) were the most widespread ungulates and were most frequently cited as responsible for damage to forage crops by those respondents who reported damage. Damage to forage crops was most frequently reported in southwestern Montana and from agricultural operations with gross annual sales >$200,000. We calculated the aggregate perceived damage to forage crops by wild ungulates in Montana during 1992 as $12.2 million.

Surveying Montanans' Beliefs About Wildlife-Related Recreation [TWS]

Scott A. McCollough., Dana E. Dolsen, Gary L. Dusek, and John P. Weigand
Montana Fish, Wildlife and Parks, MSU Campus, Bozeman, MT

Wildlife management agencies typically use public meetings and license-holder surveys to obtain public input. These techniques are effective in gathering comments from hunters, trappers, major landowners, and wildlife organizations but may preclude feedback from others. Given the interest in wildlife issues throughout Montana, Fish, Wildlife and Parks (FWP) designed a study to sample all Montanans' beliefs about wildlife-related recreation. FWP began this survey by using focus groups to develop "belief statements". Interviewers then phoned randomly-selected households, read these statements and associated questions, and noted responses. Respondents generally showed strong support for hunting and a high level of interest in wildlife viewing. They demonstrated little familiarity with trapping. Our presentation quantified the responses and discussed other results. Chi-square testing showed that beliefs, gender, and participation were often interrelated. Tests for nonresponse bias and comparisons to 1990 Census figures suggest that the survey did not achieve the objective of sampling Montana's

overall population. The major difference between the sample and the population may be the sample's large proportion of hunters and viewers. Survey results could be used to develop wildlife management strategies focused on hunters and viewers and to describe the recreational environment in FWP's environmental impact statement on its Wildlife Program.

Resources, Rhetoric, and Reality Rethinking Conflict Resolution in the Development of Natural Resources [AFS]

Michael E. McLean
Common Ground Communications, Townsend, MT

The development of natural resources in the 1980's and 1990's has become a costly, time-consuming battlefield between opposing interests. With increasing frequency, the dispute ends in litigation which solves little, if anything, and commonly proceeds to a higher plane in the form of an appellate or supreme court decision. Participants in these conflicts rarely form any sense of mutual understanding, even after the highest level legal decision has been rendered. The outcome of this situation is that, generally, all affected parties - including the public, the environment, and the resource itself - suffer some form of damage. As most of these confrontations never seem to hold any promise of satisfactory resolution, it should become evident to prudent and responsible people with a genuine interest in the matter, that it is indeed time to rethink how to go about resolving conflicts, rather than incurring the ongoing waste involved in engaging in them. The resolution process will be neither easy nor immediate. It will take time and effort encompassing not only a particular conflict in focus, but also in moderating the way in which natural resource development is perceived by all concemed parties. In overview, the resolution process should include three basic elements: first, a legal and binding agreement to resolve conflict; second, a scientific and economic information base dealing with the issues which are presented so as to be understood by concerned citizens and involved professionals alike; and third, enhanced educational curricula for those disciplines embraced by professionals represented in the controversy. North America is setting the tone for decades of future global resource development. Developing nations, without time and money for litigation, will, as history records, resolve natural resource conflicts with the best weaponry available, at an unacceptably high cost in human and environmental suffering. The challenge is much greater in scope than local or regional rhetoric would indicate. How we, as educated, technically advanced residents of this earth, resolve these issues will impact the planet for generations to come.

Restructuring the School through a Partnership of Teacher, Administrator, and Professional Development Leader [MAS]

Kenneth Miller
Montana State University-Billings

The basis of this project centers around the belief that one way to help teachers become more professional, empowered and effective is to help them to conduct research on the learning which is taking place in their own classroom. This project allowed teachers and administrators to work as teams, with the support and expertise of university faculty, to find real answers grounded on research, and to the questions and issues that control their daily lives. As a result, instructional decisions made by teachers are based upon data which they have collected and analyzed. This pilot project consisted of teachers and administrators from one school trained in strategies for assessing prior knowledge which students bring to class, instructional studies for improving that knowledge base, and methods for detecting changes in student learning as a result of classroom activities.

Science and Society: Innovations on Curriculum [MAS]

Kenneth Miller, Tom Zwick and Kristen Westesen
Montana State University-Billings

The presentation will detail a unique course opportunity provided for students at Eastern Montana College to study an area of local and national concern—the proposed Crown Butte Mine on the borders of Yellowstone National Park. Students were asked to take an active role ill their educational experience assessment was based largely upon the process of gaining broad skills and concepts in a practical application of learning. The instructors became facilitators of learning rather than controllers of curricula and worked actively with individual students to meet their needs. Essential for the course was the expansion of setting, from the limited traditional classroom to the entire affected community. The course challenged its students and instructors as it argued against narrow theory and forced all participants to question a current hegemony. Such application of critical theory was both appropriate and effective in the study of this timely and controversial topic. Ultimately, students gained the knowledge, investigative skills and confidence to find success in learning.

An Action Project Approach to Environmental Education [MAS]

Bonnie Monroe, Ralph Allen, Carol Brewer and Lee Metzgar
University of Montana, Missoula

Environmental science and environmental education provide an ideal setting for experimental opportunities in the classroom. We describe a framework in which students actively participate in activities related

project is a joint effort between ZooMontana and Deaconess Research Institute, Billings. Projected future projects include on-site propagation efforts with endangered species in the zoo collection, off-site conservation biology projects related to regional rare/endangered plants and animals, the development of on-site laboratory research facilities, and both on-site and outreach education programs.

In Vitro Fertilization and Cloning: Doors to the Future [MAS]

Peggy Walsh

In Vitro fertilization (IVF) and cloning are the doors to the future in the fight against hereditary diseases and birth defects. Tay Sachs disease, Duchenne muscular dystrophy, cystic fibrosis and sickle cell anemia are detectable in the developing embryo. Defective embryos, as well as normal ones, can be cloned and studied to unravel their genetic secrets. Detecting the genes that predispose people to such common diseases as depression, high blood pressure, cancer, obesity, and heart disease during prenatal testing is the goal of geneticists. However, IVF and cloning are in danger of being stopped. Ethical questions are being raised and people's emotions are being fired up by the media. Clinics are cutting back on their IVF research. George Washington University, where cloning first took place, has no plans for future study into cloning. Responsible people need to get serious about setting standards and regulations for genetic research.

Environmental Sciences and Engineering

Sediment Basin Design Criteria [MAS]

Howard William Cole
Civil and Environmental Engineering
Washington State University, Pullman
David R. Yonge
Washington State Department of Transportation, Olympia

The Washington State Department of Transportation designs, operates, and maintains stormwater detention basins. These basins are used to control storm water runoff from highways, thereby controlling flows in down gradient areas. Historically, storm water basin design has been based solely on hydraulic considerations. Recent initiatives by the Washington State Department of Ecology have indicated that storm water quality has become a high priority. Consequently, future design must consider water quality as well as flood control.

A scale model of a typical detention basin was constructed to control the variables associated with removal