

integrity of any remaining relatively unaltered areas as references and refuges for native communities and natural processes; Restoring damaged areas to the extent possible, with prioritizing based on achieving the greatest health/integrity for the least cost. Protecting and restoring a river basin's health and integrity is best achieved by: restoring and maintaining natural physical, chemical and

biological processes (especially stream flows); restoring and protecting riparian areas and floodplains and managing uplands to limit the altering of the water cycle; avoiding and reducing fragmentation of habitats by preserving and reconnecting high integrity areas; incorporating above aspects of watershed science in water quality laws and educating and involving citizens in monitoring and watershed councils.

HUMANITIES AND SOCIAL SCIENCES

HUMOR AND HEALTH: LAUGH FOR THE HEALTH OF IT^{MAS}

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Many scientific and social definitions of humor exist, and recently its connection to health has been explored. While seemingly a worthwhile endeavor, humor has not been studied to the extent that negative emotions such as depression and hostility have. Psychological functions of humor relate to coping with stress and a large body of literature has evolved that documents the relationship between stress and illness in humans and the effects of stress on immune function in animals. Scientific evidence points in the direction of stress-induced immunosuppression, which suggests that the stress response may be

manipulated in ways that might enhance immune function. The question is, if stress and negative emotions can suppress the immune system, can laughter promote healing? While theories exist about the effects of laughter on the immune system, little data exist to support them. However, this uncertainty has not halted all research into the subject. Several studies have shown correlations between positive immune responses and laughter. Based on theory, therapeutic applications of humor have been developed and utilized in the areas of pain management, terminal illness, and hospitalization.

FITNESS VS. AGGRESSION IN FEMALE PRIMATES^{MAS}

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In this study I examined captive socially-housed adult female rhesus

macaques to test the hypothesis that use of aggressive behavior increases

the fitness of individual females. The number of aggressive acts determines the rank of females in a linear hierarchy. The interrelation of age and aggression can effect fitness. A mother's presence

in a colony can also effect the fitness of her adult daughter. Rank, and therefore, aggression are positively correlated with fitness.

THE RANCHING COMMUNITY: INSIGHTS INTO HOW TO LIVE WITH FOUR-LEGGED AND TWO-LEGGED VISITORS ^{TWS}

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Montana is blessed with many, many ranches that have been in the same family for generations. Of these ranchers, many remember earlier in this century when there was little or no game. My own father remembers unloading elk brought from Yellowstone National Park in a reintroduction project for the Rogers Pass-Lincoln Area, which now has a large population that started with two stock trucks of animals. I also recall my great uncle telling of the first deer they knew of on their property. It was a mule deer doe that was lame and my uncle spent all winter carrying hay and grain to the areas she frequented so she'd survive the winter. In the spring she had twins and so began the careful and very personal sense of guardianship of what has become a large and healthy population even today. These illustrations demonstrate some of the beginnings and attitudes that many of today's ranchers have concerning wildlife stewardship and guardianship. Today's realities include:

- Ranchers do not always understand or appreciate the sportsmen's attitude of "right to hunt public wildlife." Sportsmen did not do the nurturing of these wildlife populations.
- The demands placed on FWP for "male" species hunting creates huge herds of females, who in turn cause crop and range damage. "Sportsmen" tend to shun hunting

females — a necessity for balancing populations.

- Ranchers feel their role in providing habitat for wildlife is not truly recognized by FWP as well as the public.
- Ranchers feel the public demands that they provide not only habitat for wildlife, but also public access to the wildlife. This "attitude" causes extreme concern among ranchers and ultimately extreme friction between ranchers and sportsmen.
- Some ranchers look at **wildlife** as a way of making money to help support their ranch.
- Loss of ranchland acres to development decreases the amount of wildlife habitat available. We must keep land in agricultural production to provide wildlife habitat.
- Conflict between ranchers, sportsmen, and FWP (which gets caught in the middle) is a given, especially concerning populations, regulations, and access.

I will review some of the initiatives pursued by ranchers to accommodate their needs as well as those of both two-legged and four-legged critters while still honoring the ranching traditions of stewardship and guardianship of our common heritage.

(*Pinus ponderosa*), 1, 2 and 11 years following disturbance at two separate sites in western Montana. One site is located on private land, owned by Bill Potter, northeast of the Lubrecht Experimental Forest in the Blackfoot Valley, and the other site is located in the Lick Creek Resource Demonstration Area on the Bitterroot National Forest. Each study site is comprised of three or four 1 hectare (2.4 acre) treatment plots, with treatments randomly assigned to each of the units. The Potter Ranch site consists of a control, a selection cut without burn, and a selection cut with an 11 year old underburn. The Lick Creek site consists of a control, a selection cut without burn, a selection cut with a 1 year old underburn and a selection cut with a 2 year old underburn. Composite samples were

taken from 0-7 cm and 7-15 cm depths at each plot during the summer of 1995. Samples were analyzed fresh for N normalization potential, microbial biomass, soil respiration rate, amino-N, NH₄+N, NO₃--N, and pH. Extractable inorganic N was increased by burning in the 1 and 2 year burn plots, but was lower than the control or thin without burning 11 years after treatment. In contrast, the N mineralization potential and microbial activity were reduced in burn plots at 1, 2, and 11 years following treatment. Plant biomass removal via selection cutting prior to prescribed burning may create a long-term decline in N availability. Increased colonization by leguminous plants on burn plots may aid in the recovery of these sites following selection cutting and burning.

ENVIRONMENTAL SCIENCES AND ENGINEERING

BITTERROOT ECOSYSTEM MANAGEMENT/RESEARCH PROJECT^{MAS-CPR}

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The BEMRP (Bitterroot Ecosystem Management/Research Project) is a multi- and trans-disciplinary effort dealing with biology, ecology, physical environment, and social needs and wants in relation to restoring an altered ecosystem. Much of the Bitterroot National Forest, especially the lower to mid-elevation landscapes, has been significantly altered in the last 100 years. Timber harvest, coupled with virtual exclusion of fire, has caused a change in species composition and stand structure. Presettlement forests were dominated by large diameter seral ponderosa pine and western larch. Typically, stands

were park-like. Today, pine and larch have been replaced largely by Douglas-fir and grand fir. Forests are multistoried, very dense, and are highly susceptible to insects, disease, and severe wildfire. Whitebark pine, once a significant component of high-elevation forests, is seriously stressed by whitepine blister rust fungus and encroachment of subalpine fir. The goal of BEMRP is to provide valid scientific information and demonstration studies that will help land managers establish desired future conditions and long-range management protocols in line with social needs and wants.

**THE RELATIONSHIP BETWEEN THE MSU-BILLINGS MINDWORKS EXHIBITION
AND THE IDEAS OF VYGOTSKY, CONFUCIUS, AND PERKINS^{MAS}**

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Intrinsic motivation is a value of the information age. According to Vygotsky, a place where choice and self-expression is practiced in a social setting allows for informal learning. Such a place is the MSU-B MindWorks interactive exhibition which "loosens the reins" of the traditional classroom and allows students to find their own 'way' in a Confucian sense. This allows for the

fulfillment of what has been called the seven urges of the human spirit — live, be free, create, enjoy, connect, understand, and transcend. Teaching and learning have now come full circle from isolated bits of knowledge to learning in a social context. This is the Confucian 'Spirit of Li'. MindWorks allows people to be co-creators of their own events.

**THE POLITICAL ECONOMY OF FAMILY STRUCTURE
ON THE ROCKY BOY'S RESERVATION^{MAS}**

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Scholars of Native American history describe the reservation period as an era of social decline and despair. Native American societies endured oppressive governmental policies, an erosion of sovereignty, and economic dependence. Amidst the radical changes were social strategies to resist and function culturally under oppressive reservation

conditions. One such strategic arena was the reorganization of the Native American familial structure. The present study examines, quantitatively and qualitatively, the evolution of Native American family structure during the post-reservation period using the Chippewa-Cree, Rocky Boy's Reservation.

**TRANSFORMATION OF THE SOUTHERN ROCKY MOUNTAINS
BY THE LEISURE BOOM^{MAS}**

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The Rocky Mountains are being transformed by the combined effects of outdoor recreation and country living, which the author has named the "leisure

boom." Intensive recreational use, runaway recreational development, and awesome proliferation of rural homes of essentially city folks living in the

country threaten to change Rocky Mountain Country more than all other economic activities combined in the entire history of the region. The transformation has gone farthest in the Southern and Central Rockies of Colorado, New Mexico, and Utah for the simple reason that these are the areas closest to a large nearby recreation clientele in Denver, Salt Lake City, Albuquerque, and other large piedmont

cities. In his research, the author has developed a classification of degrees of transformation by the leisure boom, from completely new leisure magnets where no development existed before to remote cow towns as yet untouched by the boom. Using before-and-after color slides, he presents his classification by portraying an individual town or place in the Southern Rockies to illustrate each of his seven categories.

BIAS AGAINST FAT PEOPLE: THE INFLUENCE OF WEIGHT ON PERCEPTIONS^{MAS}

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Bias against fat people has been described as one of the few "acceptable" prejudices today. Fat bias commonly takes the form of attributing negative characteristics to fat people; the presence of this bias has been empirically documented across respondent age, ethnicity, socioeconomic status, weight status, and sex. A concomitant discrimination against fat people has also been documented in social, educational, and employment settings. The present study examined the presence of fat bias in an undergraduate population. Ninety-five male and female students were presented with a photograph of a Caucasian woman

appearing fat, or the same woman appearing non-fat. Participants were asked to rate the target on various demographic and personality variables. On average, participants viewed the target as "somewhat overweight" and "average/somewhat slender" in the two conditions, respectively. The "somewhat overweight" target was rated as significantly older, having more children, less attractive, less ambitious, and more dependable than the "average/somewhat slender" target. Findings are discussed in terms of the narrow range of "acceptable" weight in Western culture.

THE MEDICINE OF ANTHROPOLOGY^{MAS}

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If one assumes that all knowledge is used by someone for some purpose, then in medical anthropology the question of who uses the ethnographic data of various cultures and for what purpose, remains. As the human population steps

into the twenty-first century, cultures, nations, and societies are becoming more intricately intertwined with one another. No longer is ill-health an isolated concern, confined to a region in time and space. Diseases like AIDS

COMPOSTING BEEF FEEDLOT MANURE: A SUSTAINABLE ELEMENT OF INDUSTRIALIZED AGRICULTURE^{MAS-CPR}

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Contemporary industrial scale grain and livestock production systems limit the wide-scale adoption of sustainable agriculture practices in the midwestern United States. Large scale grain producers no longer manage livestock and are entirely reliant upon external sources of nitrogen fertilizer. Economic and logistic realities make it unlikely that these midwestern grain producers will return livestock to their operations in the near future. Paradoxically, large scale livestock producers view manure as a waste handling problem rather than a fertilizer resource. Manure from beef feedlots with over 1,000 animals is often stockpiled, creating a point-source pollution problem. Livestock manure not handled as a fertilizer resource represents a significant waste management problem, because there are over 10 million cattle on feed in the U.S. The composting process stabilizes nutrients, kills pathogens and weed

seeds, reduces odor and moisture content, and improves physical properties, thereby improving the quality of the manure as a soil amendment. Although 20 - 50% of the nitrogen in manure may be lost during the composting process, nitrogen loss similar to stockpiling, the end product differs from fresh or aged manure in that it exhibits minimal loss of nitrogen to the environment following application and exhibits numerous other improved physical and chemical properties compared to raw manure. The slow nitrogen mineralization rate from composted manure allows for nitrogen fertility needs to be met with compost alone after 12 years of application. The reduction in nitrogen fertilizer consumption on irrigated corn in the state of Nebraska would result in an annual energy savings of over 3 million Btu/acre, which is equivalent to about 19.4 gallons of diesel fuel/acre.

ASSESSMENT OF AMENDMENTS IN THE RECLAMATION OF AN ABANDONED MINE IN MONTANA^{MAS-CPR}

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There are numerous no-responsible-party abandoned mine sites on public lands in western Montana that have been inactive for more than 70 years, yet

remain bare of vegetation and drain acidic water to mountain streams. Montana lacks organic materials commonly used in mine reclamation

and there is limited information available regarding the efficacy of alternative organic mine reclamation amendments. Replicated field and laboratory studies were undertaken to assess how various surface treatments influenced metal mobility and restoration of tailing piles along a second order tributary to the Blackfoot River. In laboratory experiments, tailings were treated with nothing, aged log-yard waste, or composted sewage sludge (Eko Kompost, Missoula, MT) each with or without lime and analyzed for pH and exchangeable lead (Pb), copper (Cu), and iron (Fe) after four weeks of incubation. Field plots (2 m x 4 m) were treated as above, seeded with native wheatgrass species, and analyzed for pH, exchangeable Pb, Cu, and Fe

microbial biomass, and vegetative cover after eight weeks. All liming treatments significantly increased pH and reduced levels of exchangeable metals. Compost applications had only a slight effect on pH, but significantly reduced levels of exchangeable metals and increased levels of microbial biomass. Aged log-yard waste alone had little or no effect on pH or levels of exchangeable metals and actually increased levels of exchangeable Pb. The ability of compost to reduce metal mobility and increase microbial and vegetative activity indicate that nutrient availability and reduced metal bioavailability may play a more important role in site restoration than correction of tailings pH.

NATURAL REVEGETATION OF MINE SPOILS ON THE BEARTOOTH PLATEAU^{MAS-CPR}

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An open pit chromite mine was operated briefly in the 1940s at 3000m on the top of the switchbacks along the eastern edge of the Beartooth Plateau. It was abandoned in 1943 with no reclamation activities. Now the mounds of spoils are being naturally revegetated. A point-intercept study of the small mounds in 1994 showed that 51 years after abandonment the rocky gravelly mounds have 42 to 57% bare soil, gravel and rock, mostly on the tops of the mounds. Forbs cover 24 to 40% of the surface of the mounds, grasses and *Carex* cover 9 to 19%, and mosses and lichens cover 0 to 3% of the mounds. Except for *Achillea millefolium*, which grows at all elevations, the graminoids and forbs are typical of the adjacent high elevation meadows. The major forbs recolonizing the mounds are *Trifolium parryi* Gray, *T. nanum* Torrey, *A. millefolium*, *Sedum lanceolatum* Torrey, *Penstemon procerus* Dougl. ex

Grah., *Geum rossii* (R. Br.) Ser., and *Erigeron* spp.; *Geum rossii* is the most abundant forb in the adjacent meadows. The graminoids present are *Carex paysonis* Clokey, *Deschampsia cespitosa* (L.) Beauv. var. *cespitosa*, *Trisetum spicatum* (L.) Richt., *Agropyron scribneri* Vasey, *A. trachycaulum* (Link) Malte, *Festuca idahoensis* Elmer, *Poa cusickii* Vasey, *P. scabrella* (Thurb.) Benth., and *Leucopoa kingii* (S. Watson) W. A. Weber; *Deschampsia cespitosa* is the most abundant grass in adjacent meadows. The tiny lichens on the soil are *Peltigera rufescens* (Weiss) Humb., *Xanthoparmelia wyomingica* (Gyelnik) Hale, and *Cladonia* sp. squamules. The lack of lower elevation weeds such as *Taraxacum officinalis* Weber and species of *Cirsium* is especially notable; it is suggested that the lack of low elevation weeds is due to the high elevation of the mine and little human visitor traffic.

have the potential to be quickly transmitted globally over a short period of time. This paper proposes that biomedicine or Western medicine offers the most effective method of diagnosis, treatment, and preventive measures to protect the human population. Thus, the role of medical anthropologist in the

twenty-first century is to make biomedicine compatible with other ethnomedical systems. In addition, medical anthropologists should be concerned with exposing the political-economic conditions from which ill-health arises.

PANEL DISCUSSION - COMMUNITY COHESIVENESS: RESHAPING RANGE MANAGEMENT TO BENEFIT LAND, WILDLIFE, AND PEOPLE ^{TWS}

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"The times they are a-changin'" is and will be a commonly used refrain for many Montanans in the 21st century. Unknown change represents what many long time residents fear most about Montana's future. The traditional ways of life and earning a living in Montana are being subjected to many stresses that affect the operational environment of ranchers, as well as federal, state, and local government agencies like the Bureau of Land Management, Montana Fish, Wildlife & Parks, and county conservation districts. Our society is

evolving more rapidly than we all might like, in part due to technology, or to immigrants with different cultures and traditions, or to economic necessity from resource degradation, international trade and market demands, and other factors such as environmental regulation. How do we deal, and how are we dealing with these changes as they affect our rangelands and their management? What alternative strategies are there to consider when addressing such changes to Montana's rangelands that affect wildlife populations and people?

HUMAN DIMENSIONS PANEL: CLOSING REMARKS ^{TWS}

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Brunson and Steel (1996:69) point out in the *Journal of Range Management* that, "for citizens to make informed choices about the future of ... lands, they need help from range professionals who understand the nature and origins of the public's beliefs and attitudes — not simply among traditional grazing or hunting publics but across a much wider spectrum of society." A successful manager of ... rangelands in the coming

decades must be able to translate public attitudes into supportable policies that address both forage and nonforage values." According to one author, people have many differing views of what they derive from the range in the way of products and services, which is strictly a commodity orientation, such as forage, versus what they truly receive from being in the environment, which is a broader, experiential orientation, such

as nonforage. The former involves an economic worldview that envisions people as customers, while the latter involves a worldview which interlinks people and land through a land ethic where people form a community over time and in place. As Schroeder, in his article "Customers' or 'Community?' Changing Perspectives on Recreational Values," states, "a community member is presumed to relate to a community not just through calculations of benefit and cost, but through a deeper feeling of belonging, interdependence and loyalty." As an example, Schroeder says "the growing popularity of ecosystem restoration volunteerism in North America may represent a trend or a shift toward a deeper expression of mutuality

between people and the land." Soon participation in outdoor activities like hunting and fishing may no longer be perceived solely as an amenity or pleasure to be enjoyed in one's leisure time as it seems to be today. Instead, such participation can serve as a linchpin to build a fuller, more interdependent and cohesive community that works cooperatively toward sustaining the quality life-style and environment (including our wildlife), which are synonymous with what the range in Montana really means to us all. In closing, as James Autrey in his book, entitled *Love and Profit*, said, "If you're not creating a community, you're not managing."

SOURCING THE PROBLEM OF CLAY-RESOURCE EXTRACTION IN BARBADOS WITH ICP^{MAS}

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Inductively coupled plasma emission spectroscopy (ICP) has been widely used for analyzing the elemental composition of various materials, including glass, metal, and rock. In this research, ICP has been used in conjunction with the "weak-acid" extraction method to determine possible sources of clay for ceramic artifacts found on the island of Barbados in the West Indies. In the past few decades, numerous archaeological excavations have been conducted on the island, but these investigations did not utilize the composition of ceramics and resource extraction of clay to complement other aspects of archaeological interpretation. Recently, interest has developed surrounding the question of

how far prehistoric peoples would have travelled for more preferable clays. It has been suggested that clay for pottery was taken from the very abundant deposits on the hillsides of Chalky Mount in the northeast part of the island. The following research is an interpretation of the sampling and analysis of pottery samples from five different archaeological sites, and clay from eight different source locations. The results appear to suggest that local marsh clays from near the settlement sites were used preferentially. The various pitfalls in preparation of samples and in making interpretations are discussed.

MODERNIZATION, POLITICAL ECONOMY, AND HEALTH^{MAS}

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Recent political debates over health care reform bring to the fore the connections between politics, economy, and health. These relationships are evident in developing nations, where early colonial systems instituted European forms of politics, economics, and health care. Although European colonization has mostly disappeared, many developing nations continue using systems dictated by Western ideology. Current political and economic dependency on European nations sustains a health care system geared toward elite and urban populations, often neglecting the needs of rural peoples and underclasses, as in the colonial era. Western health care

systems, rooted in a capitalistic form of political economy and a biomedical paradigm, often ignore 'non-medical' aspects of health crises. It is important to understand the historical and modern context of health issues in order to provide successful health care. Using a critical medical perspective, anthropologists can examine the variety of factors involved, attacking the crisis at the source. In this presentation, the historical precedence and continuing European hegemony of health care systems will be discussed from a critical perspective, providing insight to the connections between politics, economy, and health in developing countries.

ANTHROPOLOGY AND CONSERVATION: A VIEW FROM PRIMATOLOGY^{MAS}

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Habitat destruction, over-hunting, and live capture are threatening the survival of many primate species. Current forms of protection include translocation, captive breeding, rehabilitation and reintroduction, zoo facilities, 'active conservation,' and the development of protected areas. While all of these conservation techniques have both positive and negative consequences, they share the tendency to be narrow in focus. Anthropologists and conservationists are calling for a more holistic approach. These approaches stress the need for the development of

ecosystem oriented strategies. In developing ecosystem oriented conservation, an anthropological perspective can provide insight into the interactions between the environment and the local populations. A holistic approach unites a variety of perspectives in order to create a successful conservation strategy. This presentation will discuss the current threats to primate species and habitats, outline the current conservation strategies, and then discuss an integrated ecosystem oriented approach.

REIFICATION OR RELIEF? CROSS-DRESSING IN PERSPECTIVE^{MAS}

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In *Transcending and Transgendering*, Ann Bolin looks at cross-dressing and its implications for our conception of gender. According to Bolin, cross-dressing "destabilizes" our gender categories. This "destabilization" has an emancipatory potential since it challenges ideology. Crucial to Bolin's argument is the assumption that recent changes in the ideal shape of the feminine body facilitate the break-down of what she calls "biocentric" ideologies. These changes allow the emergence of transgendered identities since men can now easily emulate the feminine form.

Ease of emulation enables men to live socially as women without altering their bodies through hormones or sex reassignment surgery. The problem is that Bolin posits changes in the ideal feminine soma as the catalyst enabling the break-down of these ideologies. She fails to consider the possibility that these changes might be the work of ideology itself. Susan Willis' work illustrates the influence of ideology in changing definitions of the ideal feminine soma, thereby calling into question the emancipatory potential of cross-dressing.

SUBMISSIVE GRINS: RHESUS MACAQUE CONFLICT AVOIDANCE^{MAS}

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All primate societies have evolved predictable, ritualistic means of communication, including signals used to avoid conflict in closely knit groups. Submissive signals function as a 'white flag', providing subordinate individuals a way to clearly inform more dominant individuals that their position in the hierarchy is recognized. This white flag also provides the subordinate with a way to live with the dominant animal without provoking further attack. Aggression is a fact of rhesus macaque (*Macaca mulatta*) social life. For the majority of monkeys, days are spent in constant awareness of their position in life and with whom they can and can not be in close contact. I looked at how

well the submissive grin actually works as a means to stop aggression. Examining two years of observational data taken from a small captive colony, I broke down occurrences of submissive grins into nine categories based on whether or not an aggressive act prompted the submissive grin, how many animals were involved, and the reaction to the individual using the submissive grin. I found that the majority of occurrences of submissive grins were either in response to aggression and were successful in stopping it, or were preventative displays given without any initial act of aggression.

LEARNING FROM THE WIND: BASING FOREST MANAGEMENT ON NATURAL DISTURBANCE REGIMES^{MAS-CPR}

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We are studying the process of wind disturbance in the spruce-hemlock forests of southeast Alaska. These forests are cool and wet year-round, and frequent storm winds from the North Pacific are the predominant natural disturbance agent that shapes them. As a disturbance agent, wind is selective, concentrating its effects on small patches and on individual trees weakened by disease or injury. An understanding of the effects of selective wind disturbance will help in predicting the effects of selection harvest systems, an anthropogenic disturbance.

Experimental selection harvests are beginning, but with rotation lengths of at least 100 years, and it will be decades before the effects of these treatments are understood. By examining the effects of "natural" selection harvests from the past, we hope to provide immediate

insights that will guide forest planners today. We are quantifying post-disturbance stands with a disturbance severity index: the percentage of the stand that was felled by the disturbance. Because the presence of residual trees affects the amount of sunlight reaching understory plants, we hypothesize that understory composition and structure will be correlated with disturbance severity. An example of this is the abundance of plants used as deer winter forage. During the stem exclusion stage of forest stand development following catastrophic disturbance, these plants are absent. In southeast Alaska, this stem exclusion stage lasts almost 100 years, but we hope to show that its length is partly dependent on disturbance severity and may be controllable by manipulating the number of residuals.

CPR FOR THE CLARK FORK PEND OREILLE BASIN^{MAS-CPR}

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The Clark Fork Pend Oreille basin of western Montana and northern Idaho contains wilderness areas, superfund sites, and ecosystems that vary from healthy to very degraded. The human population in the basin is rapidly growing as are resource conflicts. To protect the basin's health and integrity, citizens need a clear vision of what is needed to maintain a watershed and its ecosystems. A healthy ecosystem is one that is largely self-sustaining and

inhabited by humans that choose to limit their demands on it to the level that it can support without degradation or depletion. An ecosystem with a high level of integrity is dominated by natural processes and native communities. Achieving ecosystem health and integrity requires 'CPR':

Conserving the health of multiple use areas by limiting use to the level that can be sustained without degradation or depletion; Preserving the

MINING AND TRIBAL SOVEREIGNTY IN THE AMERICAN WEST^{MAS}

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One of the most ironic facts about the history of Westward expansion and colonialism is that Native Americans were placed on what was thought to be the most desolate, useless land possible, yet now many tribes find that they sit upon a great potential for wealth. As nuclear energy has taken the world economic stage, an increasing number of "energy resource tribes" have made or accepted proposals to mine the uranium that lies beneath their reservations. Those that have tapped into this source of wealth have found that it can strengthen their sovereignty. Any understanding of contemporary resource management

requires research into the history of the federal acts and policies that have regulated its development. Beginning with the Dawes Act of 1887, this presentation spans four distinct eras of federal and corporate policies regarding tribes and their resources. The paper then discusses three case studies of uranium mining on reservations and the resulting environmental degradation. Finally, the paper concludes with a discussion of tribal sovereignty and the role that uranium mining plays in its long term development, or perhaps its ultimate downfall.

ROADSIDE GEOGRAPHY: AN ARCHAEOLOGICAL SURVEY^{MAS}

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Human use of the land has long been studied and the information gained has been used to describe certain aspects of life. Use of the land for various reasons has been documented by the archaeological evidence left behind. A good way to access the geography is a method used by Anthropologists called an archaeological survey. This technique involves collecting information for one or more sites that helps in making a rough estimate of nature and type of occupancy at those sites. This is an important way in which evidence is

collected for use in generating theory about how humans used the land in the past. It is typically used in conjunction with ethnographic information. The knowledge about land use thus gained can be applied to the search for insight into history and prehistory by both formal and informal means. Being knowledgeable about geography helps one become aware of what resources where available and to understand their use. Roadside Geography is a modern day recognition survey method that is an effective means of introducing basic geographical terms and features.

WELFARE REFORMS: STEPS TO CHANGE THE FUTURE ^{MAS}

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To deepen the understanding of the welfare system in Montana, I propose that more attention be devoted to those actually involved in the process. My research concerns single-mother welfare recipients and their attitudes toward the new welfare reforms called Families Achieving Independence in Montana, or FAIM. Using interviews, I evaluated the extent of each woman's knowledge on

the reforms and their perceptions of how the reforms will affect their lives. The data show that these women will be entering the FAIM programs without knowing the details. The interviews also show themes of anger, frustration, and distrust of the welfare system. This suggests that the welfare recipients' attitudes may affect the success of the new welfare reforms.

PERCEPTIONS OF BIG GAME: AGENCY PERSONNEL VS. AGRICULTURAL PRODUCERS ^{TWS}

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Professional employees of state and federal resource agencies may be required to respond to problems related to big game animals on farms and ranches, may serve as a conduit of information about managing game damage to ranchers and farmers, and to provide a route for agricultural producers to convey their problems and attitudes towards big game on their properties to agency administrators and the public. If professionals in resource agencies accurately judge perceptions of farmers and ranchers towards wildlife, this 2-way flow of information will facilitate maintenance of wildlife and wildlife habitat on private lands. If agency personnel misjudge perceptions of farmers and ranchers, policy and relationships between private land

owners and wildlife will suffer. We compared responses of >1,100 commercial farmers and ranchers in Montana to a survey on damage by and attitudes towards big game with responses of professional agency personnel working for Montana Fish, Wildlife, and Parks (MFWP), the Natural Resource Conservation Service (NRCS), and the Montana Extension Service (MES) to a series of questions about game damage and attitudes towards wildlife. Information from agricultural producers was taken from a random sample that produced a 58-59% response rate (~8% of total commercial producers) for the Montana Farm and Ranch Survey of 1993 and 1994. Information from agency personnel was based on returns (67-83% response rate)

from a survey mailed to all professional resource employees within each agency in 1993. In general, agency personnel accurately predicted the level of satisfaction agricultural producers indicated for 1992-93 population levels of white-tailed deer (*Odocoileus virginianus*) and mule deer (*O. hemionus*) and elk (*Cervus elaphus*) but underestimated producer dissatisfaction with high antelope (*Antilocapra americana*) populations. Agency personnel significantly overestimated how serious agricultural producers rated game damage in 1992-93. Agency personnel also failed to distinguish differences between perceived game damage levels on farms (low) and on ranches (moderate). Wildlife biologists and wardens in MFWP were more likely to overestimate the seriousness of damage than NRCS and MES

employees. When asked to estimate how ranchers and farmers would respond to a set of specific questions about costs and benefits of wildlife, agency personnel consistently overestimated the importance of both negative and positive aspects of wildlife on agricultural lands. Resource agency personnel accurately predicted the percentages of farmers and ranchers who allowed some form of hunting on their property (81% vs. 84% predicted for farms; 86% vs. 86% for ranches) but estimated fewer operations were open to public hunting and more were reserved for fee hunting than was reported by farmers and ranchers. Understanding why differences in perception exist and how to minimize them will pay dividends both for agency personnel and agricultural producers.

THE EFFECTS OF MISSIONIZATION AND DISEASE ON THE ABORIGINAL
POPULATION OF CALIFORNIA DURING THE NINETEENTH CENTURY,
PARTICULARLY THE CAHUILLA, YUKI AND YOKUT^{MAS}

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Disease introduced by Europeans, most notably the Spanish, had a devastating and irreversible effect on the Native American population of California from the eighteenth century onwards. Thousands of men, women and children died from smallpox, measles, malaria, and syphilis, among other diseases. The Spanish establishment of the mission system in 1769 along the coast from southern to northern California accelerated this massive population decline, serving as a breeding ground for the aforementioned diseases. During the early to middle

nineteenth century, when the missions were on the decline due to the Spanish government's decree of secularization, neophytes left the missions and taking with them diseases that took a toll on "wild" (or non-missionized) Indians. The Cahuilla of southern California, the Yuki of central California, and the Yuki of northern California, are three tribes that experienced the effects of missionization and disease to varying degrees. These groups are examined with regards to the influence of these two factors on the survival of their cultures.

PRESERVING AND BUILDING YOUR COLLECTION THROUGH CASTING^{MAS}

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Casts of human remains, fossils, artifacts, and other objects are for sale and on display worldwide. Museums, educational institutions, law enforcement agencies, and individuals all covet high quality, finely detailed casts. Casts can be produced that look identical to the original specimen, but in many cases are much more durable. Also, casting allows multiple copies to be made so that many people can study the same object simultaneously. Most casting methods are very similar. First, a mold is made by covering an object with

a flexible substance. During this step, a release agent is used to prevent materials from bonding to each other. After removal of the original, a material (usually liquid) is poured into the mold and allowed to cure. The cast is then removed. While casting methods are similar, the materials vary widely and new ones are frequently being invented and discovered. In this presentation I discuss several different materials used for cast and mold making, as well as the basic steps of how to make a mold and cast.

EXTENSION STRATEGIES TO BUILD BRIDGES AMONG DIVERGENT INTERESTS^{TWS}

Jim Knight

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There are four major roles of the extension wildlife specialist, including: communication, dissemination, identification, and formulation. To act effectively on these responsibilities, the extension wildlife specialist must first understand what factors wildlife managers take into consideration when making their decisions. Because of the social considerations and the various interests (both active and passive) in wildlife, the wildlife extension specialist helps build the bridges needed to connect the decision makers with the representatives of active interests in particular. A variety of active interest representatives need to be connected into the decision-making process, including outspoken critics, commodity groups at various scales, commissions, and legislators. Once the audiences are tentatively targeted, further identification work is necessary by the wildlife extension specialist to confirm

what the real problems are, which communities are and will be affected, who represents these communities and interests, and what conceivable solutions need to be considered. The wildlife extension specialist then guides the decision makers and the affected communities in seeking out win-win solutions and developing those most appropriate on a situation by situation basis. An important approach integral to the wildlife extension specialist's credibility is the establishment of trust, not only between the specialist and the community or the decision-maker, but between the decision-maker and the affected community so that a direct relationship emerges involving both parties. As wildlife professionals, we must all become bridge builders, not watch from shore by becoming too comfortable with the status quo or any one audience.

PROPERTY RIGHTS, WILDLIFE, OPEN SPACE AND
MASTER PLAN RHETORIC - A CASE IN POINT ^{TWS}

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It has been said that one of the major differences between a developer and a preservationist is that the preservationist had his or her cabin in the woods first. And so it is with human nature - one moment we are developers or home builders/owners and the next moment we are preservationists. Many of us are both at the same time, which can cause an awkward conflict of values. Concerns about subdividing the land in Montana for home sites are not new. In an article in the January/February, 1974 issue of *Montana Outdoors* about land development, Governor Tom Judge was quoted, "We were told that we were in the backwater of the nation's economic system. We were informed that [development] had passed us like a ship in the night." "Now", he noted, "we have finally realized that while Montana stood still, other parts of the country were going too far, too fast, in the wrong direction. Montana still has the opportunity to preserve a quality environment", the governor concluded. I believe that preserving this "quality environment" includes preserving open space and a diversity of wildlife habitats not only in the so-called "wild places", but in our urban growth areas as well. However, because of property rights and local politics, this is much easier said than done. From 1993-1996 there was a major subdivision issue to develop a 147 acre parcel of land in the Bozeman, Montana urban growth area that many thought should be kept as agricultural open space. This would also allow this area to continue to serve as habitat for a diversity of wildlife species and because of its location within the Bozeman Creek corridor, act as a "sponge" to help lessen downstream

flooding. This issue developed into a classic confrontation of property rights vs. master plan goals/objectives and community and neighborhood desires. After eight public hearings and substantial testimony from many citizens/experts, and despite a litany of evidence not to develop this area as proposed, including Master Plan goals/objectives, the Bozeman City Commission consistently approved the project throughout the process with a 4 to 1 vote. Curiously several local government officials, including those elected, concurrently extolled the importance of unique or special areas that should be preserved for the good of the long-term future of Bozeman. They addressed the importance of maintaining a quality environment for people to live with ecologically sound development, but in their final decision to approve this project put the consideration of the developer's property rights at a higher level. This proved that the so-called "Iron Triangle", which consists of the land owner, investor, and lawyer, is still the dominant force in land development issues in Montana and throughout America. What is a quality environment and what is an ecologically sound development? What exactly are "property rights"? Are individual property rights and maintaining a quality environment for the good of a community in direct conflict? How does wildlife and its habitat fit into the land development equation? How does the Montana Subdivision and Platting Act factor into all of this? These and other questions pertinent to urban growth issues and wildlife concerns will be discussed in this presentation.

"IT'S OUR DAMN COUNTRY": THE MOTIVES FOR MILITARY SERVICE AND THE SELF-IDENTITY OF FORT BELKNAP VETERAN AMERICANS^{MAS}

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Native American participation as US military regulars has rarely been investigated from their perspective. This study analyzes the life history of six military veterans from Fort Belknap Reservation in north-central Montana. I hypothesize that Fort Belknap veterans joined the military as an expression of either who they are or who they aspire to be culturally. Each life history was divided chronologically into four phases, and the data within these phases were sorted between negative and positive conditions. The development of a national consciousness through

schools and media was identified as a precondition for choosing military service. Four key motives for joining the military were: military veteran family and friends, limited economic and educational opportunities at Fort Belknap, the level of national crisis at the time of enlistment, and personal need for excitement and escape. Analysis of the life stories supports the hypothesis that contributors' military service was an enactment of their inclusive view of themselves as Americans.

MOTIVATIONS OF WILDLIFE VIEWERS IN MONTANA^{TWS}

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Wildlife viewing is among the fastest growing and highest participation outdoor recreation activities in the United States. Unlike hunting, where the product and source of satisfaction are explicit and well documented, the benefits of wildlife viewing are still undergoing identification and description. Montana, with its outstanding and diverse wildlife population, makes an ideal viewing destination, not only for nonresidents, but for its citizens as well. Identifying motivations of both resident and nonresident wildlife viewers accomplishes several goals. First, it helps wildlife managers determine the array of benefits their programs produce, benefits that are not necessarily accounted for under traditional wildlife management programs. Second, understanding

motivations of nonresidents helps both managers and tourism industry administrators more effectively market the watchable wildlife resource, leading to a broader base for economic development. This information, tied to preferences for facilities and programs, also allows development to proceed that is both sensitive to the habitat needs of the wildlife species but also helps visitors achieve a higher quality experience. And, such information can assist wildlife managers understand how to create greater support for watchable wildlife programs. This paper presents results of two studies conducted in 1993 to better understand wildlife viewing patterns and participation in Montana. One study concerned motivations, preferences and expenditure patterns of nonresidents visiting Montana for wildlife viewing

purposes. This study was conducted using a highway intercept method coupled with a mailback questionnaire. The second study involved a random sample of Montana adults and queried them, via a mailback questionnaire, about participation in wildlife viewing, beliefs about wildlife and preferences

for funding wildlife viewing programs. Both studies demonstrated that there are a variety of motivations for viewing wildlife, that these motivations are linked to preferences for facilities and programs, and that there are significant barriers to finding acceptable programs for funding wildlife viewing programs.

PREDICTIVE MODELING OF ARCHAEOLOGICAL SITES: A BASIS FOR COMPARISON^{MAS}

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A predictive model is a tool used to give the probable location of archaeological sites, based on a set of variables. Predictive models are used by archaeologists and land managers to assist in deciding when and where to conduct archaeological surveys. I wanted to find out if "real" archaeologists used predictive models, so I interviewed eight archaeologists and conducted a literature search. I asked the archaeologists if they used predictive models, why or why not, what the positive and negative aspects of predictive models are, and if GIS could

assist in creating predictive models. The most commonly used predictive model was based on each archaeologist's own experience in the field. About half the archaeologists said predictive models do not work, while the others said predictive models can work, or that they are trying to create their own in spite of the many flaws. The downfall of predictive models is that they attempt to quantify human behavior. However, human behavior is at least partly random, and therefore impossible to fully predict.

PRIVATE LANDS AND PARTNERSHIPS: PERPETUATION OF MONTANA LANDSCAPE^{TWS}

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Annually, our country converts close to 1.5 million acres, or 3 acres every minute, from open space. Montana is not exempt from this trend. Between 1990 and 1995, Montana's population grew by 71,000 people with a large percentage of that growth occurring in western Montana. Incompatible subdivision and development has fragmented wildlife habitat. Wetlands are being filled for residential lots. Rich topsoil is being covered with asphalt. However, with the intensified loss of conservation resources, the interest and demand for

private land conservation has increased. A national leader, the Montana Land Reliance (MLR) has protected more than 187,337 acres for wildlife and fish habitat, agriculture, and unreplaceable open space. MLR's five year growth strategy is to conserve an additional 100,000 acres by 1998. By building relationships with private landowners and by developing partnerships with private and public entities, our collective goals for the perpetuation of Montana's landscape are more effectively attained in this time of rapid change and crisis.

BRINGING PEOPLE TOGETHER TO BENEFIT WILDLIFE ^{TWS}

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Federal land management agencies, particularly multiple use agencies, have been viewed historically with mistrust by the publics they serve due to the need for allocation of finite resources among competing interests. Those that had the resources viewed the agency as a giver of benefits but did not trust the agency to look out for their interests because they knew others were out there who wanted their allocation changed or taken away. Those who did not have the resources (the have nots) viewed the agencies with suspicion for being in the grip of the haves. As agencies have tried to deal with their publics this mistrust has brought many cooperative planning efforts to a screeching halt or never were implemented or were implemented but never followed through due to lack of commitment. This problem was especially vexing with regards to new demands on the range resource through the Allotment Management Planning process. This process was designed to improve range and livestock management through site specific planning and range improvements, and was usually conducted only between a rancher and a BLM range conservationist. As the agency and the public realized that more resources than just livestock and forage were at stake more people needed to become involved in the process. The Judith Resource Area office of the Bureau of Land Management, based in Lewistown, Montana has been using an interdisciplinary resource management team to plan and implement resource decisions. Although Interdisciplinary teams have been used for larger NEPA planning projects use of the team to plan and implement at the watershed or

allotment level is a relatively new occurrence. Key to the ID team concept in the Judith Resource Area is to ensure that all the people with required input are members of the ID team. This includes other agencies, concerned organizations or individuals and the rancher. One case study that will be used as an example is the Boxelder Creek Resource Activity Plan which occurred in Petroleum County, Montana in 1994-95. The BLM assembled a team of specialists which included a range conservationist, wildlife biologist, outdoor recreation planner, archeologist, and invited participation by the rancher Jim Brady, NWF, MWF, MRA, the local biologist for Montana Fish, Wildlife and Parks. The process is time consuming because participants try to get a feel for the issues and land involved and, most importantly, agree on a mutual vision of what they would like the land to look like in the future. This sharing of thoughts, memories and views of the future was a trust building process, one that served to bring the team members together, and which has helped implement and monitor the progress toward meeting objectives. The Judith Resource Area has taken this concept and applied it to several individual allotments where all resources were looked at. The next step is ongoing with one small but entire watershed being looked at now. Next on line is Operation Cottonwood, a plan for reviving and restoring riparian vitality to 149 miles of the Upper Missouri National Wild and Scenic River. In addition the entire Lewistown District of the BLM, which takes in over 4 million acres of public land from Glacier National Park to Fort Peck Reservation and from the Canadian border to the

Musselshell River, is adopting a "Watershed Implementation Strategy" designed to build trust with landowners, ranchers and permittees, providing them more freedom in livestock management while adhering to clear resource objectives and joint

visions of the land, and being consistent with the overall Standards and Guidelines for range uplands and riparian resources that the Bureau is considering now as part of the new range regulations.

LATE PREHISTORIC FORAGING STRATEGIES ON THE NORTHWESTERN PLAINS: VARIATION IN PLAINS, MOUNTAIN AND BASIN CONTEXTS^{MAS}

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The diet breadth model from foraging theory predicts that as the procurement of high ranked subsistence resources becomes increasingly costly, foragers will add additional lower ranked resources. For hunter-gatherers, this implies that acquisition and processing strategies may vary along a continuum between narrow and broad spectrum resource packages while

holding techno-infrastructure constant. This model is supported with data from the Northwestern Plains, indicating that hunter-gatherer foraging strategies in intermontane basins were more severely altered during dry periods than those of the shortgrass plains 2200-400 B.P. due to relationships between climate, forage production, and technological organization.

COMPARISONS OF MORTALITY STATISTICS FROM THE MONTANA TERRITORY, 1870 AND 1880^{MAS}

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Mortality schedules from the U.S. Census of 1870 and 1880 contribute to our knowledge of the history and frequency of disease. In this study I calculated crude death rates for the total population. Using five year age cohorts and proportionate mortality rates for all deaths occurring from a particular disease, I tried to determine if there were any correlations between causes of death, age, sex, and month of death. The results showed that disease affected the population as a whole, without respect to sex and age, with the exception of

young children (0-9 yrs of age). Men had a higher mortality rate than women, but this could be affected by the ratio of men to women during these time periods. No relationship between the cause of death and the month of death was found except for a few specific communicable diseases: typhoid fever and cholera in the summer months; smallpox, diphtheria and scarlet fever during the winter months. Naturally occurring failures of the human body and communicable diseases were the top causes of death in 1870 and 1880.

PREHISTORY IN THE NORTHERN ROCKY MOUNTAIN REGION: THE
ARCHAEOLOGICAL RECORD AT SITE 24GN13^{MAS}

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Site 24GN13/167 is a historic/
prehistoric site located in western
Montana and in the Northern Rocky
Mountain physiographic province. In
1993, the Forest Service excavated
several units to sample four areas within
this site. The excavations yielded a
variety of stone tools, more than 2,700
flakes, other prehistoric objects, and
historic materials. The relative
abundances of flakes considered by size
class or lithic material type vary by area,
and the total quantities of flakes vary

according to their proveniences in
particular (arbitrary) levels in particular
areas. Projectile point forms suggest
repeated site occupations over a period
of several thousand years, and the tools
and flintknapping debris may
demonstrate the carrying out of some
particular activities at the site. The
observed variations in distributions and
issues such as the use of the projectile
points as cultural diagnostics deserve
further investigation.

MISCEGENATION AND DISEASE IN SPANISH FLORIDA: A MIXED RECEPTION^{MAS}

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The synergistic relationships
between infectious disease and living
conditions have received widespread
attention in the anthropological
literature. The North American contact
situation has yielded studies
demonstrating increased mortality rates
in epidemics caused by such factors as
lack of nutrition, poor sanitation and
emotional distress in the wake of
chronic crowd-type infections on a scale
that was unprecedented in this
hemisphere. Despite catastrophic losses
of greater than 95% in some areas, many
native groups managed to adapt to this
biological and cultural onslaught. The
process of miscegenation is manifested

both biologically and culturally, and is,
therefore, very well equipped to handle
both facets of the mortality due to
synergism. The question remains,
however, what combination of biology
and culture promoted the survival and
resurgence of admixing native
populations. Data from the colonial
presidio of St. Augustine reveal how the
Spanish and native Timucua, Guale and
Apalachee lived and interacted. This
evidence clearly demonstrates that
Mestizos acted as cultural mediators
that contributed to decreased mortality
by reducing the effects of the vicious
cycle of synergism between disease and
living conditions.

LIFE IN TRANSITION: HUALAPAI ECOLOGY^{MAS}

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Anthropological studies must address the concepts of ecology and landscape to understand a culture group's perceptions and structuring of the physical environment within which they live. Ecology and landscape are both rooted in the study of the interrelationships between human cultures and their environment. Human-environment interrelationships are the focus for this analysis of prehistoric Hualapai subsistence and

economic practices. The physiographic Transition Zone in which the Hualapai live and the symbolic importance of the character "Coyote" in Hualapai oral tradition serve as the central elements for the present study. Evidence is presented from the archaeological and ethnographic records to breakdown the false dichotomy between nature and culture; while developing a model in which both are considered active agents within the ecological context.

THE WOS OF TUCSON: CHINESE IMMIGRANT EXPERIENCE IN A DESERT COMMUNITY^{MAS}

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Chinese immigrants to Tucson during the late 1800s and early 1900s experienced a cultural context unlike any they had previously known. The physical environment of the Sonoran Desert was only one of the myriad exotic stimuli that impacted their lives in southern Arizona. A concurrent examination of the documentary and material records of Chinese immigrant experience in the Old Pueblo reveals a diverse spectrum of adaptation to their

cultural and physical environment. The implementation of Middle Range Theory into this study effectively illuminates the ambiguities present in the historical and archaeological records; while developing the means to address important anthropological questions. This paper focuses on evidence of differential cultural adaptation patterns between Chinese immigrant merchants and sojourners in Tucson at the turn of the last century.

HUMAN DIMENSIONS IN WILDLIFE MANAGEMENT: THE KEY TO CONSERVATION SUCCESS^{TWS}

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Human Dimensions in Wildlife Management is the theme of this meeting. You have been exposed to 46

formal presentations and posters at the meeting. Using generous criteria, 22 of them addressed human dimensions in

wildlife conservation: 4 dealt with people's attitudes regarding wildlife; 3 dealt with direct impacts of human activities on wildlife; 5 dealt with indirect impacts that result from human activities; 8 dealt with socio-economic forces affecting wildlife; and 2 addressed policy implications. These are all important; necessary but not sufficient to factor in the full dimensions of human-wildlife interactions. What's missing? Population and demographic change is what's missing. This is what drives all the rest. The human population grows; it spreads; it adopts new technologies; it forms new lifestyles; it struggles to hold on to old lifestyles; it enters a global arena of cultures, values, markets and environmental forces. All of these influence what goes on in the U.S., in the Northern Rockies, in Montana, in the Paradise Valley, in your own backyard and neighborhood. Much of it is beyond our direct control or influence; but not all of it, and certainly not all of the effects on wildlife. We conservationists need to carry out three crucial exercises to succeed in the dynamic world of the future: create a shared vision with the diverse cultures in our society about the desired future for wildlife and its roles in our lives; honestly assess the current reality and trends of major forces affecting that desired future; and set a course for

action on the gap between the current reality and the desired future. If we, as a professional and citizen based group of individuals who care about wildlife do not accomplish these three tasks, the future of wildlife will be the accidental result of what the major forces of change, i.e., population, technology, economy, values, do to change the world in which we live. One hundred years ago, Theodore Roosevelt and his close friends took up this challenge in a different time. It was the close of a century and the dawning of a new one that saw the emergence of the conservation movement as we have known it. We are approaching the close of another century and the dawning of a new millennium. Last month I attended the 7th American Forest Congress, whose purpose was to take up this challenge for the nation's forest resources. It is now time to take up the new challenge for wildlife in the new time and set a new course that builds on the successes of our predecessors. It is time for an American Wildlife Congress to begin to chart the new course. This time the competition is tougher and the challenges far more difficult. We will not succeed unless we go after the megafactors that are shaping the future. Nibbling around the edges of human dimensions is useful and necessary but not sufficient.

NEW VISIONS OF PRIMATE ORIGINS AND MONTANA'S ARCHONTAN FOSSIL RECORD^{MAS}

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The standard model of primate origins has changed drastically since 1989. Since 1989, the question of the evolutionary relationships among superorder Archonta, including primates, tree shrews, colugos, and possibly fruit bats, has become

important. In 1989 we believed that primates originated in North America from an ancestor similar to the plesiadapiforms of the Paleocene (53 to 65 million years ago) of North America and Europe, and that *Purgatorius* (70 million years, Montana) was the first

primate. New discoveries of more modern primates in the Paleocene of Asia and Africa, reinterpretation of plesiadapiforms as more like colugos than primates, and recognition of microsyopids as primate-like mammals of the Paleocene of North America and Europe, have combined to force anthropologists to rethink the question of primate origins. Now, we believe

that primates originated in Asia or Africa, perhaps from an ancestor similar to microsyopids, and that *Purgatorius* is possibly an ancestral archontan. The answers to some of our current questions will be discovered by examining sites that date to the Early Paleocene (60 to 65 million years ago), and some of the best of these sites are located in Montana.

CULTURE CHANGE AND THE KUTENAI/SALISH TRIBES^{MAS}

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Whatever the justifications, the affirmative Western cultural tradition that had been inherited by the United States, became an alibi for domination of the Native American tribes, including the Kutenai and Salish. These tribes, as a result of their cultural values were ready victims of oppression from the beginning of contact. They couldn't fathom the White culture in the context of their own. Today, the Tribes' culture is manifested in their moral and ethical practices, which are sustained by their

oral and other traditions. These traditions provide a social construction of cultural identity and its continuity, and continue to be transmitted and preserved, thus providing a barrier against the total loss of their social identity. Any success they have over the tragedies of their lives is a result of their capacity for self-renewal as fueled by their reinterpretation of traditions and practices. These are experiential territories that were never conquered by the White culture.

PRELIMINARY RESULTS OF MONTANA HUNTER/RANCHER ATTITUDE SURVEY^{TWS}

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Conflicts between hunters and ranchers have elevated recently in Montana. This is illustrated by complaints and pressure for new legislation from wildlife, hunter and livestock producer groups. There is a need to identify problems and solutions perceived by hunters and ranchers. This information will allow identification of common ground issues and areas of perceived conflict. A questionnaire was

sent to a random selection of 1000 Montana hunters and 1000 Montana ranchers. The first one-third of the questionnaire was different for the two groups. Hunter questions pertained to hunting experience, species hunted, region hunted and days hunted. Rancher questions pertained to ranch size, ownership, management strategies, number of people hunting, days of hunting allowed, and species present on

the ranch. The last two thirds of the questionnaire was identical between the two groups and presented questions related to perceived problems and solutions, experiences, game populations, importance of private land and agricultural land to wildlife, and representation of the two groups. Thirty-five percent of the hunters responded and 42% of the ranchers responded. Sixty-five percent of the hunters surveyed had more than ten years of hunting experience. During the 1994 big game season 85% of the hunters who responded to the survey had hunted deer, 73% hunted elk, and 79% hunted antelope. Hunters hunted deer on both private and public land 48% of the time, elk were hunted on public land 52% of the time, and antelope were hunted on private land 47% of the time. Sixty percent of the responding ranchers own or manage 1,000 to 10,000 acres. Rancher response indicated 93% of the ranches contain deer, 38% contain elk, and 64% contain antelope. The top three ranked problems identified by hunters were: 1) too little access to private land, 2) driving off roads, and 3) trespassing on private lands. The three top ranked solutions presented by hunters were:

1) greater consideration and appreciation by ranchers, 2) better communication between hunters and ranchers, and 3) better boundary identification. The three top ranked problems identified by ranchers were: 1) driving off roads, 2) trespassing on private lands, and 3) too many hunters. The top three ranked solutions according to rancher response were: 1) stiffer penalties for violators, 2) better communication between hunters and ranchers, and 3) greater consideration and appreciation by hunters. Both hunters and ranchers ranked driving off roads and trespassing in their top three problems. Hunters and ranchers also ranked better communication and greater consideration and appreciation in their top three solutions. Fifty percent of the hunters responding believe they represent themselves or have no representation regarding hunter/rancher related issues; whereas, 62% of the responding ranchers indicated they are represented by livestock producer groups. Preliminary results indicate that hunters and ranchers have similar concerns and they believe that better communication will help to alleviate some of the problems.

LET'S GET PHYSICAL: SEX AND EVOLUTION^{MAS}

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In order to try to understand the evolution of human mating strategies, we need to determine whether reproductive strategies are biological or if gender rules are in any way associated with sex. This paper addresses the biological views of

reproductive strategies within the context of cultural gender rules. By using examples representative of both males and females, I attempt to show how culture has transcended biological reproductive strategies.

PHARMACOLOGY IN PREGNANCY AND CHILDBIRTH
AMONG NATIVE NORTH AMERICANS^{MAS}

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Physiologically, the woman's experience of giving birth is much the same around the world, but socially and culturally the phenomenon varies widely. Each culture associates various meaning and importance to childbirth as it affects both the mother and child, as well as their community. The way in which a culture views pregnancy and childbirth guides our understanding of

their interpretation and value of life. Also, we are able to learn how the role of one's birth fits into the larger community. This paper will examine the meaning of pregnancy and childbirth among select Native North American societies and discuss their food taboos and various traditional medicinal practices that apply to the woman and fetus during this process.

AGRICULTURE AND HEALTH: ENVIRONMENTAL, CULTURAL,
AND BIOLOGICAL EFFECTS OF HUMAN TECHNOLOGICAL CHANGE^{MAS}

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Agriculture is one of many large scale technological changes that has impacted the way humans live. Through the use of paleoethnobotanical studies in conjunction with osteological techniques the effects of agricultural origins on people's health can be more fully understood. Studies conducted over the past fifteen years have shown that the origins of agriculture had marked effects on human health, but the interpretations of these results are biased by the models employed. Models used in the investigation of the effects of human technological change on health often acknowledge the

presence of environmental and biological stressors but hold these constant in order to understand the effects of technology. While, theoretically, this approach should give insight as to the stresses caused by technological change, the dynamic aspect of environment and biological adaptation must be considered in order to gain a complete picture of how these technological changes affect human health. This paper focuses on investigating the dynamic nature of environment and biology with regards to the impacts of agricultural origins on human health.

LOCATION AND RECOVERY OF FOSSIL NOTHARCTINE PRIMATES
OF THE BRIDGER BASIN, WYOMING^{MAS}

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Methods for the location and recovery of fossil specimens vary depending on the fossils recovered and the type of matrix from which they are recovered. Regardless of environmental constraints, the extraction of fossil materials is time consuming and requires that the attention of the field crew be geared towards recovery rather than the location of other specimens. This imbalance in time allocation results in limited finds of scientific value. The American Museum of Natural History's 1996 Paleo-primate field season in the

Bridger Basin, Wyoming was, possibly, the most successful ever due to the specialized recovery techniques developed by project coordinator John Alexander. This "three hammer" technique allows for the comparatively rapid but safe removal of fossil specimens through the exploitation of natural joints in the matrix. Through the implementation of this method, the field team spends more time surveying for specimens than recovering those already located.

SUMMARY MEASUREMENTS OF FUNDAMENTAL FREQUENCY IN SPEECH
DIRECTED TO DEAF OR HEARING INFANTS BY DEAF OR HEARING MOTHERS:
A PROPOSAL^{MAS}

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This project will investigate the "motherese" phenomenon as it occurs in interactions between deaf or hearing mothers and deaf or hearing infants. It is proposed that levels of auditory functioning will have an impact on the modulation of pitch used in ID speech, and that the specific communicative functions of ID pitch modulation hypothesized in the "motherese" literature may also be accomplished by other communicative forms that are more suited to the sensory capacities of a deaf infant or more familiar to the communicative style of a deaf mother.

These hypotheses will be tested with summary measurements of fundamental frequency data generated from acoustical analyses of vocalizations from videotapes of four types of mother-infant dyads. These results will show that different communicative strategies are employed to achieve critical social functions in mother-infant interactions depending on the hearing status of the mother and infant. Such findings will benefit students of human development and persons concerned with early intervention on behalf of deaf children or children of deaf parents.

**FIELDS OF VISION: LAND, NATURE AND IDENTITY IN THE
ART OF CONTEMPORARY NATIVE AMERICAN ARTISTS^{MAS}**

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European American culture traditionally views land as a commodity, an 'object' for exploitation, or a resource to serve the needs of humankind. Native Americans, in general, consider land sacred. Their natural world is viewed as a living entity that should be treated with reverence and respect. Today, a considerable amount of Native American art embodies what George Longfish defines as "landbase" - something that "incorporates place, history, culture, physiology, a people and their sense of themselves and their spirituality". In this context, land

grounds an individual by providing them with historical, physical and spiritual roots. The concept of landbase broadens one's understanding of nature and the earth as an all-encompassing force whereby signs of the natural world become metaphors for socio-cultural identity. By incorporating references to the past, present, and future, contemporary Native American artists attempt to describe the complexities of living in two worlds and two cultures. They produce works of art that reflect their identity as Native Americans and as modern artists.

MIGRANTS AND RESIDENTS IN THE MOUNTAIN WEST^{MAS}

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The influx of migrants to the Mountain West has boosted the population in this once empty quarter of the United States. Migration gains appear to be driven by amenities, not jobs or income, and long-term residents in the labor force perceive increased competition for a given or even declining employment base. Residents, in particular those with low skill and education levels, fear competition from newcomers. Poorer residents also feel crowded out of the housing market by

wealthier migrants. Post-census microdata shed light on these fears and perceptions. Migrants and residents are compared using socio-economic data from the 1993 Current Population Survey. The results suggest that short-term migrants, in particular those in the labor force, experience difficulty in getting integrated in housing and labor market and do not fare as well as expected. The need to observe residents and migrants over longer timespans will be discussed.

FORENSIC RECOVERY TECHNIQUES: AN EXAMINATION OF A CASE AT THE
UNIVERSITY OF MONTANA - MISSOULA ^{MAS}

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Forensic anthropology is the branch of physical anthropology that deals with the identification of human skeletal remains. In the majority of cases, our laboratory receives remains from the Montana State Medical Examiner, and we are asked to estimate the age, stature, weight, and sex of the individual; estimate time since death; and search for trauma or pathology. In order to gain the most thorough amount of information possible in any forensic case, we must have as much of the remains as possible as well as any pertinent cultural and contextual evidence. Ideally, therefore,

anthropologists should carry out field recovery of remains. This rarely happens, however, because law enforcement agents are often pressured to recover evidence quickly. Most remains are excavated by police who have minimal training in archaeological methods. There may be many problems associated with such recoveries. One case we received may represent a compromise. We received a set of remains encased in dirt, and essentially performed an excavation in the laboratory. The quality of evidence recovered from this case was high.

BIOMEDICINE AND ETHNOMEDICINE IN CONTACT ^{MAS}

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Medical practices are a form of cultural adaptation - a reaction to perceived environmental factors. How a culture defines these factors, and therefore how these factors are dealt with, are rooted in cultural ideologies. Throughout the world, medical practices have been placed into two distinct categories: biomedicine and ethnomedicine. Due to a multitude of

factors, including population explosions and industrial colonialism, the boundaries between biomedicine and ethnomedicine have collapsed. This paper briefly examines how a people's perception of the similarities and differences between these two medical practices influence the type of medical treatment sought.

**CONCEALED POLITICS, REVEALED WOMEN:
GENDERED ICONS OF LABOR IN INDONESIA** ^{MAS}

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Trade union politics have been suppressed, often violently, in Indonesia's New Order era (1966-present). The murder of a young Javanese woman, Marsinah, in 1993 drew international attention to extralegal abuses as her death became an icon of protest and publicity of workers' rights in Indonesian media and arts. Discourse surrounding Marsinah's murder structured its representation of women's interests as workers through cultural conceptions of labor, gender, and the public nature of scandal, at the

same time concealing the political and historical processes by which Javanese women have figured as "workers" in contemporary Indonesia. This paper examines the publicity of trade union politics and the "feminization of labor" as processes which, paradoxically, reveal workers as women, even as they conceal local politics within a logic of scandal. This paper is based on Indonesian media sources and fieldwork on industrial labor relations from 1986-1993.

**THE REALITIES OF NAGPRA: THE REPATRIATION OF
NATIVE AMERICAN REMAINS IN MONTANA** ^{MAS}

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During the summer of 1995 the Anthropology Department of the University of Montana reanalyzed and catalogued Native American skeletal remains that had been housed at the Billings Curation Center. This was done in compliance with the November 16, 1995 deadline of the Native American Graves Protection and Repatriation Act. Although these remains fell under federal legislation, there have been several prehistoric Native American cases that have been sent to our

department for analysis that were covered by the Human Skeletal Remains and Burial Site Protection Act of Montana instead. This paper is intended to provide a brief summary of NAGPRA and Montana state burial laws as they pertain to human remains and describe how the University has been effected by burial legislation. Finally, a report as to the current status of cases that have been analyzed in our laboratory will be provided.