

flamulated owls were detected along 11 transects between Darby and Sula. In an attempt to explain the distribution of flamulated owls along occupied transects, I compared forest structure data collected in 11.3 m fixed-radius circular plots centered on owl singing locations and unoccupied random plots. Flamulated owls were positively associated with the number of snags >15 in dbh, ponderosa pine trees >15 in dbh, canopy height, live basal area, and percent cover of dry forest indicator species (*Antennaria racemosa*, *Balsamorhize sagittata*, *Festuca idahoensis*). Conversely, they were negatively associated with number of Douglas-fir trees <9 in dbh, trees other than ponderosa pine or Douglas-fir, and percent cover of moist forest indicator

species (*Galium triflorum*, *Linnaea borealis*, *Thilictrum occidentale*, and *Vaccinium spp.*) These variables were collectively represented by cover type, with owls using mature and old ponderosa pine/Douglas-fir forest types rather than young or moist forest types. In future analyses, I will use a Geographic Information System to determine whether broad-scale habitat variables, such as the percent of the landscape covered by each forest type, explain which transects contained flamulated owls. Results of this study are expected to provide a greater understanding of flamulated owl habitat use and provide managers with information needed to manage for this species at a variety of spatial scales.

HUMANITIES AND SOCIAL SCIENCES

THE CONCEPT OF ETHNICITY: WHAT WEIGHT IS ETHNICITY? ^{MAS}

Daniel Bonadurer
University of Montana, Missoula, MT

Where one belongs, where one can retreat, where one can find familiarity; this is one's ethnicity. The concept of ethnicity can be considered to be the an extrapolation of the family or the most basic unit of biological and social reproduction. Although identity is the central concept, it is ethnicity that often

supplants this notion because it is often assigned from outside the group or from within as a response to pressures from without. With borders being questioned everyday, ethnic affiliation, with its many levels of application, becomes hyperstragetized, hyperinflated, and superimposed.

MONTANA METAMORPHOSIS - THUNDERING TRANSFORMATION OF MONTANA'S ECONOMY ^{MAS}

John M. Crowley

Department of Geography, University of Montana, Missoula, MT

Montana is undergoing a thundering economic transformation that began about 25 years ago with the country-living craze. It is still going on, but is largely unnoticed. The major driving forces of the transformation are the coal boom, the rise of remote-area enterprises, and -- most importantly -- what the author has named the "leisure boom." Dramatic changes accompanying this transformation include a general decline of traditional extractive industries, a tremendous increase in nonlabor income and self-employment, the hiring of labor to do household tasks formerly done by

family members, and money spent here by would-be immigrants. To these must be added several national economic trends, which are affecting Montana as they are the rest of the nation, and some dramatic changes brought about by government. At the same time, there are structural changes in the web of cities, communications, and hinterlands. The transformation is having some adverse side effects and tends to be concentrated in a number of small areas and along certain routeways. The author proposes a wiser direction than that currently being taken by the powers that be.

A FUTURING APPROACH TO ALTERNATIVE DEVELOPMENT FOR FISH, WILDLIFE AND PARKS' WILDLIFE ENVIRONMENTAL IMPACT STATEMENT ^{TWS}

Gary L. Dusek and Scott A. McCollough

Wildlife Division, Montana Fish, Wildlife and Parks, Bozeman, MT

In 1991, Montana Fish, Wildlife and Parks (MFWP) initiated a review of its Wildlife Program. This review includes preparation of an environmental impact statement (EIS) covering all of MFWP's wildlife-related actions. This EIS is expected to provide guidance for future environmental reviews and program compliance with the Montana Environmental Policy Act. Fish, Wildlife and Parks identified 13 issues relevant to managing the state's wildlife and associated recreation. The process of developing alternatives to address these issues has taken several turns since mid 1993. The initial proposed action, intended to "manage wildlife with a focus on ecological systems...", failed to

adequately address many of the issues. That process was replaced by one in which alternatives were represented along a continuum of management emphasis such as game species vs. all wildlife, public trust vs. privatization, etc. Montana Fish, Wildlife and Parks is now using scenario planning to develop alternatives that address technological, social, and economic forces that affect MFWP's decisions and actions. Some of these forces are predetermined while others are shrouded with uncertainty. These "predetermined elements" and "critical uncertainties" are the building blocks for scenarios that provide insight into what may shape a probable future.

COMPARATIVE ANALYSIS OF FLUORESCENT DYE STAINS FOR LATENT PRINT PROCESSING ^{MAS}

Amy Eaton
University of Montana, Missoula, MT

One common process for stabilizing latent prints is cyanoacrylate (Super Glue) fuming. The cyanoacrylate polymer formed via this process is an excellent base for absorbing fluorescent dyes, which may yield enhanced visualization under an alternative light source. In this study I tested the ability of four fluorescent dyes to enhance the visualization of latent prints on various types of surfaces. I tested Rhodamine, Ardrox, MBD, and RAM dyes, on four different surface types: black plastic

from the base of soda containers, plastic grocery bags, clear glass plates, and treated semifinished wood panels. Two types of latent prints were tested for each combination of dye and surface: prints made with natural skin oils and prints made in my blood. Each of the dyes was effective on at least some print/surface combinations, but no single dye was effective on all such combinations. Further research is needed to completely characterize the utility of each dye.

USES FOR PLASTER CASTING IN HISTORIC PRESERVATION ^{MAS}

Julie Eklund
University of Montana, Missoula, MT

This paper presents a procedure for plaster casting of architectural features. I discuss my tests of various molding and casting materials, and present my recommendations for which are best. I mention some precautions regarding building and historic preservation codes. Much of the content of this research stems from the casting of an

acanthus leaf design relief that was attached to a wall at the University of Montana, Missoula, and the preparation for casting a column capital from the Daly Mansion. This procedure can be especially useful for historic restoration projects because exact replicas can be produced, often from the same materials of which the original was made.

RUSSIAN AMERICAN DIFFERENTIAL ADJUSTMENT WITHIN THE FAMILY ^{MAS}

Scott M. Fitzpatrick
University of Montana, Missoula, MT

In contrast to many other ethnic groups that have maintained a relatively constant rate of immigration throughout the twentieth century,

Russian-Americans are unique in that they have not experienced a continuous immigration to the United States. For Russian immigrants, this has created a

number of unique problems. The lack of central Russian-American communities, deficiency in the English language, and other disparate social problems all have contributed to a general inability to adjust rapidly to American society. The Bicultural Model attempts to examine

and explain the conflicts that arise between family members and the importance of the individual variables that can promote or discourage effective adaptation, as well as the differential rates at which it occurs.

THE HMONG: THROUGH CONFLICT AND TRANSITION ^{MAS}

James Anthony Flanagan
University of Montana, Missoula, MT

The Hmong have an extended history of resettlement, conflict, and change. Through these transitions, the Hmong have defined themselves ethnically and distinctly from other ethnic groups. The greatest challenge to Hmong ethnicity, however, has been a result of their emigration to the United States. In America they are confronted

with a culture that is extremely different from their own and difficult to integrate into traditional cultural practices and values. This presentation provides a brief history of the Hmong and discusses their ethnic transitions, concentrating on their movement to America and how it has affected the elder men in their American communities.

IS AMERICAN ETHNICITY REVOLTING? ^{MAS}

Aaron Goodfellow
University of Montana, Missoula, MT

The work of Dick Hebdige demonstrates how style in subcultures is a response to changes in the socio-economic arrangements of society. Hebdige reads the text of subcultural style as an expression of identity opposed to the hegemonic culture of bourgeois capitalism. Punk style represents a running commentary on life

within the cultural boundaries of society. Rereading the work of Hebdige, in light of recent anthropological work, allows the political question of identity to be explored, providing insight into the term ethnicity. By viewing style as an expression of ethnicity, anthropology can comment on the dialectic between culture and capitalism.

NATIVE AMERICANS AND "THE" ETHNIC EXPERIENCE ^{MAS}

Scott Heron
University of Montana, Missoula, MT

By separating the last two centuries of Native American conflict into four distinct types, this paper examines the common origins, processes and outcomes of each. The commonalities, or "laws of conflict", can help anthropologists understand how and why groups that come into contact react

as they do. By using historical examples, I will show how conflict itself changes not only the groups' practices, but their ethnic identity as well. This model is applicable to all conflict situations and may help us to further understand them; possibly, even predict them.

ARCHAIC PEOPLES AMONG THE ROCKY MOUNTAINS ^{MAS}

Russell L. Holzheimer
Department of Anthropology, University of Montana, Missoula, MT

Archaic peoples among the Rocky Mountains can be examined by looking for those things that they made and did. This report focuses on some aspects of a project aimed at documenting past human existence. We'll probably never know with certainty whether certain meanings or interpretations are true, but one can develop a model and test how reasonable an interpretation might have been. The Archaic Period dates to 6000-1000 B.C. One can present a model for the life-style of Archaic peoples during this time span based on the analysis of cultural features, burial sites,

faunal and floral remains, tools, and other forms of data available in the archaeological record. It is also possible to suggest a local, regional, and areal environmental reconstruction based upon ecological data recovered. By showing the possible technological derivations of traditions that develop, a hypothesis for cultural transition during the North American Archaic Period can be made. This report establishes a general foundation for human occupation over thousands of years and characterizes the conditions for life in the Archaic Period.

TIBETAN REFUGEES: POLITICS, RELIGION, AND ETHNIC IDENTITY ^{MAS}

Timothy B. Hughes
University of Montana, Missoula, MT

The considerable number of people that have fled from Tibet since the Chinese invasion in 1950 make up one of the worlds larger refugee

communities. The struggle of the Tibetan people to maintain their ethnic identity in the variety of socio-political environments, represented by the many

different countries to which they have immigrated, provides a unique opportunity to examine the concepts of ethnicity and identity. The articulation of these concepts in relation to the

political and religious aspects of the group, and its history, provide an informative approach to the problem of defining the concept of ethnicity.

THE EFFECT OF SLEEP DEPRIVATION ON MENTAL, PHYSIOLOGICAL, AND PHYSICAL FUNCTION ^{MAS}

Jodi Kranpitz and Chad Dunn
Carroll College, Helena, MT

Many people believe sleep rest restores the wear and tear that occurs during the day. Until recently, this hypothesis has been supported by little research. The objective of this experiment is to determine the effect of sleep deprivation on mental physical, and physiological performances. Three female and two male students from Carroll College were selected to participate in the experiment. Subjects

were evaluated by completing a series of 3 mental and 3 physical tests before and after sleep deprivation for a period of 24 hours. It was found that mental ability increased after sleep deprivation; Student's T-test probabilities ranged between .058 and .10. Physical ability decreased after sleep deprivation; probabilities ranged between .04 and .1494.

OPIUM DENS UNDER THE BIG SKY ^{MAS}

Kevin J. Lyons
University of Montana, Missoula, MT

The 19th century opium dens of North America were places where Sino- and Euro-American acculturation occurred. The perceived threat of the seduction of "innocent" Euro-American daughters at the hands of "evil" China Men set the stage for contemporary

drug wars. Through an examination of the historic record, the relative importance of the opium den in the Western United States illustrates that an open market for drugs results in lower rates of addiction than explicit state proscription.

THE EFFECT OF ADMIXTURE ON RACE CATEGORIZATION IN FORENSIC ANTHROPOLOGY ^{MAS}

Darcy Olson
University of Montana, Missoula, MT

Forensic anthropologists are often asked to estimate race from skeletal remains. This is one of the most difficult tasks they face, and it is made even more difficult by the pervasive tendency to confuse biological race with ethnicity. Race may be estimated by visual examination of the skull or by discriminant functions analysis, wherein measurements of the skull or other bones are used in a computer-generated formula giving a score that may be used to classify individuals to one group or another. Most individuals of all races

are, in reality, of mixed ancestry. Societal rules tend to classify mixed individuals with whatever non-white race predominates in their ancestry. The effect of such admixture on discriminant functions analysis has been little studied. Using measurements of "pure" Native Americans (Sioux), "pure" Whites, and mixed Sioux/White individuals recorded in databases collected by Franz Boas in the 1800s. I found that individuals who are less than 7/8 "pure" score randomly on discriminant functions for race.

A MINDWORKS EXHIBITION AS A MODEL FOR INFORMAL EDUCATION ON A UNIVERSITY CAMPUS ^{MAS}

Coleen Rarlsen, Shannon Rirkwood, and M Gershon Bulgatz
Montana State University-Billings, Billings, MT

Formal education is the dominant aspect of learning on a university campus and emphasizes the abstract and artificial. Life relates thoughts and feelings to behavior in a natural setting and can be called informal. The university competes with life. This problem has been recognized and one alternative model is an interactive exhibit based on non-linear processes. How prevalent and viable is such a model? A survey concerning these and other questions were sent to psychology departments in the United States. Forty-one out of 148 were returned. One hundred percent had no knowledge of an interactive exhibit on a university

campus. The respondents felt that an interactive exhibit could be used best for class projects and community service. Connections with other departments on campus could be done thoroughly showing that psychology is embedded in other fields, similar methods are invoked in different disciplines, informal contact can occur, cooperative exchanges can take place and it can connect to the community. The interactive exhibit is not prevalent but is useful and seems adaptable to a variety of needs. The interactive exhibit is an informal place that generates enthusiasm and creativity.

FLAKED STONE ARTIFACTS FROM 24GN13,
A HISTORIC/PREHISTORIC SITE
IN THE NORTHERN ROCKY MOUNTAINS ^{MAS}

Brenda Reed
University of Montana, Missoula, MT

Site 24GN13 lies within the Northern Rocky Mountain physiographic province. Historic and prehistoric artifacts are present within the site's boundaries, as is 24GN167, the Hogback Homestead cabin. The prehistoric artifacts include flaked stone tools, blanks, preforms, and lithic debitage. Projectile point types suggest repeated use of the site from the Late Paleoindian through Late Prehistoric or historic periods. Projectile points are potentially assignable to types associated with the Columbia Plateau, Great Basin, or Great Plains culture areas. A Northern Rocky Mountain sequence may also be represented. The

variety of artifacts at 24GN13 suggest that the site was a campsite at which the occupants pursued a variety of activities. The material may reflect both women's and men's activities. Obsidian is present. Most of the sourced samples came from Timber Butte or Bear gulch, both in Idaho. Comparisons of the relative percentages of material types at 24GN13 with those at nearby sites demonstrate statistically significant inter-site differences that might be archaeologically meaningful. The possibility that thermally altered (heat-treated?) materials were flaked at the site deserves further investigation.

WATCHABLE WILDLIFE PROGRAM IN ECOSYSTEM MANAGEMENT ^{TWS}

Deborah Richie
The Nature Conservancy, Missoula, MT

Wildlife viewers continue to represent the fastest growing group of wildlife recreationists. From 1980 to 1990, participation in wildlife viewing away from home increased by 76 percent in the Mountain West. Watchable wildlife as a program to address the recreation, conservation, and educational aspects of wildlife viewing continues to gain momentum as well. Montana published one of the first wildlife viewing guidebooks in 1990, with sites marked by binocular logo road signs. To date, there are 18 state guidebooks, with 10 more on the way and a revised Montana edition planned for Spring, 1995. Each marked

viewing area represents a "teachable moment" for concepts key to the understanding of ecosystem management. Watchable wildlife is a significant tool to convey ecosystem management principles in a lively, interpretive way at influential moments (i.e. while watching a bald eagle feasting on kokanee). The selection of wildlife viewing areas and choice of interpretive messages are especially critical. Charismatic megafauna sites (bighorns, elk, deer) attract viewers and can be a focal point for exploring the strands of an ecosystem. Enigmatic minifauna sites (frogs, bats, butterflies) offer infinite possibilities from the amazing role of

pollinators to the effects of global climate change. Finally, whole community sites, such as tallgrass prairie or cottonwood river bottom, can yield interpretation of interlocking landscapes. Watchable wildlife also goes beyond "sites" to holistic programs. The Lolo National Forest's program carries biodiversity themes to people of all ages via school talks, naturalist walks,

wayside exhibits, nature trails, canoe trails and songbird educational trunks. The trick to making ecosystem management "real" is to take the esoteric and make it simple and connected to a wildlife viewing experience in a natural environment. Sound science and creative interpretation can be powerful partners.

THE EFFICACY OF HYPNOSIS ON PAIN REDUCTION ^{MAS}

Natalie Roe
Carroll College, Helena, MT

The use of hypnosis to reduce the intensity of pain has been well-documented in both research and applied settings. This experiment was performed to determine the effect of hypnotic induction on the perception of pain and to establish whether or not the researcher could learn to effectively hypnotize subjects. Nineteen college students volunteered to be hypnotized, or to participate as a control subject. In the experimental situation, subjects were exposed to hypnotic techniques and

then pricked with an acupuncture needle. The control subjects were exposed to a reading on hypnosis and then pricked with an acupuncture needle. All subjects indicated their perception of pain on a pain perception rating scale. Data were classified into pain vs no pain categories. Chi-square analysis ($df=3$, $X^2=9.6$) indicated that hypnotized subjects experienced pain less frequently ($p<.05$) than non-hypnotized subjects.

CONTRACTING FOR RECOVERY OF ENDANGERED SPECIES ^{TWS}

Greg Schildwachter
Boone and Crockett Wildlife Conservation Program,
School of Forestry, University of Montana, Missoula, MT

In the debate over reauthorization of the Endangered Species Act, few professionals have considered additional or alternative strategies to a federal program for preventing extinction. The federal Endangered Species Program is the dominant approach, but it could be supplemented with any strategy that successfully organizes and uses the necessary labor,

habitat, and information. An additional strategy may be to enable people to organize the effort privately, through contracts among citizens, private recovery firms, and landowners (i.e., people who control labor, habitat, and information necessary for recovering endangered species). The feasibility of this approach is affected largely by the cost of establishing and executing

contracts (i.e., the transaction cost); therefore, I used Contracting / Transaction-cost economic analysis to study contracts for conservation. Conservation agents included: U.S. Department of Agriculture (Conservation Reserve Program), Delta Waterfowl Foundation, Colorado Division of Wildlife (Ranching for Wildlife), The Nature Conservancy, Defenders of Wildlife, and U.S. Fish and Wildlife Service (Red Wolf Recovery Program). Transaction costs in these contracts are affected most by the definition of the product or service purchased from landowners: more specific definitions are more costly to measure. For example, purchasing the service of determining only the presence of a species is less expensive than purchasing the service of maintaining a

certain level of population viability. In some situations, the extra cost of measuring population viability may be covered willingly. Additional factors influencing the terms of contracts include: the number of landowners involved, the type of contract (i.e., handshake agreement, easement, or fee-title purchase), and the state of technology in wildlife science. Franchising may be an acceptable way of authorizing private firms to handle endangered species. Firms offering to purchase a public management franchise would need to: (1) demonstrate competency; (2) agree to follow certain performance guidelines; and, (3) purchase from the government the legal authority to handle endangered species.

HOW CHILDREN SCORE ON DISCRIMINANT FUNCTIONS DESIGNED FOR ADULTS ^{MAS}

Randall R. Skelton

Department of Anthropology, University of Montana, Missoula, MT

Forensic anthropologists attempt to determine the identity of individuals from skeletal remains brought to them by law enforcement agents. One aspect of personal identity is sex, which may be estimated by visual and metric methods. The standard metric technique for estimating sex is discriminant functions analysis. Existing discriminant functions for sex are designed to be used with adults. The question of how well they work with children has not been adequately explored. I constructed a

discriminant function for sex using 7,428 adults from the Boas Anthropometric Data Set, and used the function to estimate sex for 6,102 children from this data set. The accuracy was about 50% for people 12 and under, about 90% for people 19 and older, and increased in a nearly linear fashion between ages 12 and 19. The function scores small people as female. I tried three methods for compensating for the effect of size, without success.

HAITIANS: ETHNIC MAINTENANCE THROUGH ETHNIC BAGGAGE ^{MAS}

Matthew A. Tornow
University of Montana, Missoula, MT

Despite the fact that many culturally unique peoples living in the United States have been subject to coercive assimilation, many have succeeded in preserving their ethnic identities. Haitians in the United States provide an excellent example of how ethnicity can be preserved through the expression

and utilization of multiple ethnic identities. The examination of the Haitian population, and the different ways in which Haitian ethnicity is expressed by members of the group, provides insight into the phenomenon of ethnic preservation through the use of multiple ethnic affiliation.

ETHNOGENESIS AND THE METIS ^{MAS}

Joseph Trottier
University of Montana, Missoula, MT

During the sixteen hundreds, the Algonquian tribes that inhabited the Great Lakes Basin developed an alliance with the French that offset the Iroquois-English pact. Relationships between French men and Native women produced a culture we now label "Metis". Through various modes of transportation, the Metis people adapted to the prairie-plains region of

North America. Geographic mobility, crucial to the fur trade, was essential to the ethnogenesis and maintenance of the Metis identity. Centered along the Red River area of present day Manitoba, North Dakota, and Minnesota, the Metis culture is a synthesis which has developed into a singularly unique identity and way of life.

THE BASQUE: ETHNIC PRESERVATION THROUGH LANGUAGE ^{MAS}

Christopher C. Wahlfeld
University of Montana, Missoula, MT

The concept of ethnicity has played a very important role throughout the world in the last three decades, and will continue to do so well into the twenty-first century. But without an understanding of how, and why, groups maintain their individual ethnic identities, the concept remains ill defined and, consequently, poorly

understood. The Basque community of the American West illustrates two important aspects of an understanding of the concept of ethnicity: language and comfort. Not only are these aspects of ethnicity important to the maintenance of the group, but they are also ethnic markers which are essential to the group's preservation.

MOTHERING STRATEGIES IN *PAN TROGLODYTES* AND *HOMO SAPIENS* ^{MAS}

Jennifer Yoneji
University of Montana, Missoula, MT

This study applies information gained from primatological studies to the development of mothering strategies for human mothers. Because the nature of the mother-child relationship is critical in the development of a child's self-esteem, which, in turn, impacts the nature of society as a whole, it is essential that women have access to as many sources of guidance and support as possible in their roles as mothers. The choice of *Pan troglodytes* as a model for human behavior is substantiated by the high degree of correlation between the

psycho-physiological attributes of chimpanzees and *Homo sapiens*. Comparison of the behavior of two chimpanzee mothers from the Gombe National Park in Tanzania with the behavior of twenty-five human mothers, as reflected in a mothering survey, reveals that principles of effective mothering can be derived from chimpanzee behavior. The principles modeled by successful chimpanzee mothers are patience, love, firm discipline, and active involvement with the child.

RETAINING SKELETAL INFORMATION THROUGH THE USE OF PLASTER CASTING BEFORE REPATRIATION ^{MAS}

Wendy Young
University of Montana, Missoula, MT

Herein I explore the possibility of applying plaster casting techniques to problems involved with repatriation of skeletal remains. I propose that plaster casting can be used to help retain information that may be lost during the repatriation process. I focus on what the Native American Graves Protection and Repatriation act is, who it effects, and

the controversy surrounding it. I discuss the importance of retaining information inherent in skeletal material, how plaster casts can help in retaining a record of this information and what some members of the Native American community think about the casting of human remains.