IDAHO CHAPTER

THE WILDLIFE SOCIETY

24th ANNUAL MEETING

FEBRUARY 20–21, 1987

BOISE, IDAHO

IDAHO CHAPTER - THE WILDLIFE SOCIETY

1987 ANNUAL MEETING

ACKNOWLEDGEMENTS

The Idaho Chapter wishes to recognize the substantial efforts of several individuals for making this meeting possible.

KAREN STEENHOF

VICKI SAAB MARKS

SIGNE SATHER - BLAIR

DAN HERRIG

BILL MULLINS

CHUCK BLAIR

We also appreciate the generous contribution of $100.00 each from the following companies in support of this gathering.

CH2M HILL

IDAHO POWER COMPANY

1987 ANNUAL MEETING
OF THE
IDAHO CHAPTER- THE WILDLIFE SOCIETY

RED LION DOWNTOWNER
FEBRUARY 20-21, 1987

FRIDAY FEBRUARY 20

7:30 - 8.15 Registration - Lobby

8:15 - 8:25 OPENING REMARKS

SESSION A. Population Status Reports. -Wayne Melquist, moderator

8:25 - 8:45 History and status of California bighorn sheep in Idaho- D. E. Toweill, Idaho Fish and Game, Boise

8:45 - 9:05 The nesting status of the common loon in Idaho and Wyoming- T. Fitch and C. Trost, Idaho State University, Pocatello

9:05 - 9:25 Preliminary report on the reintroduction of sage grouse into the Sawtooth Valley- D. D. Musil, University of Idaho, Moscow

9:25 - 9:45 Distribution and abundance of bald eagles wintering on northern Idaho's Lake Pend Oreille- J. Crenshaw, Idaho Department of Fish and Game, Sagle Last winter → high of 429 eagles on Lake Pend Oreille.

9:45 - 10:00 Status of the Swainson's hawk in southern Idaho- M. Bechard, Boise State University, Boise

10:05 -10:25 BREAK

SESSION B. Wildlife/Habitat Interactions. -Kathy Lucich, moderator

10:25 -10:45 Avian use of campground and non-campground sites in riparian zones of northern Utah- J. A. Blakesley and K. P. Reese, University of Idaho, Moscow

10:45 -11:05 Movements of mule deer in response to hunting- C. G. Brown, Idaho Department of Fish and Game, Pocatello

11:05 -11:25 Nest site characteristics and nesting success of redheads and over water-nesting mallards at Bear Lake NWR- R. W. Tressler, Jr. and K. P. Reese, University of Idaho, Moscow

11:25 - 1:00 LUNCH

SESSION C. Wildlife Conservation Strategies. -Ed Robertson, moderator

1:00 - 1:20	A summary of the Hagerman Box Canyon issue- S. Langenstein, Bureau of Land Management, Shoshone
1:20 - 1:40	Restoration, monitoring, and offsite mitigation: techniques for alleviating riparian losses- M. Stevens, Environmental Protection Agency, Boise.
1:40 - 2:00	Development and use of a wetland bank as a mitigation alternative in Idaho- R. B. Tiedeman, Idaho Transportation Department, Boise
2:00 - 2:20	Access in Idaho: crossroads in human/wildlife interactions- P. Moroz, U. S. Forest Service, Emmett
2:20 - 2:40	1985 Farm bill- how it will impact Idaho's upland wildlife- Part II- M. W. Anderson, Soil Conservation Service, Boise
2:40 - 3:00	Funding wildlife research: An adventure in creative financing- J. W. Connelly, Idaho Department of Fish and Game, Pocatello
3:00 - 3:30	BREAK
3:30 - 5:00	Business Meeting
5:00 - 6:00	Happy Hour. Part I.
7:00 - 8:00	Happy Hour. Part II.
8:00	Auction
9:30	Music and Dancing

SATURDAY FEBRUARY 21

SESSION D. Wildlife Research & Management Techniques. -Kerry Reese, moderator

8:50 - 9:10	Use of Loran C navigational equipment in wildlife telemetry studies- C. G. Brown, J. W. Connelly and J. W. Unsworth, Idaho Department of Fish and Game, Pocatello
9:10 - 9:30	Evaluation of helicopter counts of mule deer in southeast Idaho- B. Ackerman and E. Garton, University of Idaho, Moscow
9:30 - 9:50	Resolving conflicts between roosting ravens and electric power transmission- L. Young, Bureau of Land Management, Boise; K. Engel, J. Roppe and C. Wright, Pacific Power and Light, Portland
9:50-10:10	BREAK

SESSION E. Wildlife Habitat Management. Jerry Gregson, moderator

10:10-10:30	Cooperative shrub restoration program for southcentral Idaho- L. Mangan, BLM, Shoshone; C. Kvale, Idaho Dept. Fish and Game, Jerome; and C. Ogden, BLM, Shoshone
10:30 -10:50	Design of a wetland complex to mitigate for roadway impacts in Cougar Bay, Coeur D'Alene, Idaho- R. B. Tiedeman, Idaho Transportation Department, Boise
10:50 -11:10	Aspen management; methods and problems- J. J. Spillett, Caribou National Forest, Pocatello
11:10 -11:30	Aspen habitat: inventory and evaluation- W. J. Rhue, Caribou National Forest, Soda Springs
11:30 -12:40	LUNCH

SESSION F. General Biology. -Jeff Marks, moderator

12:40 - 1:00	Familial resemblance in black-billed magpies (Pica pica)- L. Reed and C. Trost, Idaho State University, Pocatello
1:00 - 1:20	A conceptual model for population dynamics of mountain goats- J. Hayden, Idaho Dept. Fish and Game, Pocatello
1:20 - 1:40	Resource partitioning by bobcats and coyotes in a coniferous forest- Dale E. Toweill, Idaho Fish and Game, Boise
1:40 - 2:00	Reproductive success of burrowing owls (Athene cunicularia) using artificial nest burrows in southeastern Idaho- B. Olenick, Idaho State University, Pocatello
2:00 - 2:20	Kleptoparasitism in the American white pelican- S. Hart, Idaho State University, Pocatello
2:20 - 2:40	Winter ecology of rough-legged hawks in southeastern Idaho- J. Watson and R. Eng, Montana State University, Bozeman
2:40 - 3:00	CLOSING REMARKS AND AWARDS

IDAHO CHAPTER - THE WILDLIFE SOCIETY

1987 BUSINESS MEETING AGENDA

OLD BUSINESS

- 1986 Meeting Minutes
- Treasurer's Report - Dan Herrig
- Membership Status - Dan Herrig
- Membership Questionnaire - Bill Mullins
- 1986 Chapter Activities
- Bylaws Changes
- Summer Meeting
- Meeting Location
- Committees

NEW BUSINESS

- Membership Directory
- Ted Trueblood Best Speaker Award - Karen Steenhof
- Election Procedure
- 1988 - Our 25th Year
- New Officers
- Newletter title, new logo - Phyllis Kochert
- Other Items

BOP303/013

IDAHO CHAPTER OF THE WILDLIFE SOCIETY

AUCTION AND RAFFLE ITEMS

South Fork Payette River Trip (4 people for one day)	Bill Mullins/ Wayne Melquist
Christmas Tree	Roger Williams
Sage Grouse Hunt	Larry Mangan
Wildlife Prints*	Edson Fichter
South Fork Snake River Float Trip (2 people for one day)	Bob Jones
Art Posters*	Idaho Department of Fish and Game
Snake River Waterfowl Hunt (1-2 people for one day)	Jay Gore
Two dozen fishing flies*	Gene De Reus
Horseback Ride Near Boise (1 person for one day)	Karen Steenhof
Wildlife Prints	Erica Craig
Boise River Beer Trip (4 people for one day)	Wayne Melquist
New Sweater*	Lenny Young
Brownlee Bass Fishing Trip (2-3 people for one day)	Sam Mattise
Notecards*	Idaho Department of Fish and Game
Wolf, A Modern Look	Jim Nee
Gift Certificate*	Koppel's
Gift Subscriptions for Idaho Wildlife*	Idaho Department of Fish and Game
Nongame T-shirts*	Idaho Chapter, TWS
Autographed Copy of Forest Bird Communities of the Hawaiian Islands	J. Michael Scott

AUCTION AND RAFFLE ITEMS (Continued)

Sage Grouse Hunt	Jack Connelly
Rainbow/Greyling High Mountain Trip	Hadley Roberts
Spring Steelhead-Salmon River (½ day)	Bill Bernt
Sharp-tail Hunt	Bill Davidson
Chukar/Blue Grouse Hunt	Gene DeReus
South Fork Snake River or Box Canyon/Henry's Fork Float	Tracy Trent
Mountain Lion or Black Bear Photo Session	Gary Power

*Items for raffle. One Edson Fichter print will be raffled.

BOM4/055

EVALUATION OF HELICOPTER COUNTS OF MULE DEER IN SOUTHEAST IDAHO

B. ACKERMAN and E. GARTON. Department of Fish and Wildlife Resources, University of Idaho, Moscow, Idaho 83843

We have conducted tests of helicopter survey procedures in southeast Idaho since 1984 to quantify visibility of mule deer and to improve estimates of mule deer numbers and composition. Visibility is significantly affected by group size, group behavior, vegetation type, and time of year. Results were used to correct aerial counts in 1985-86. Corrected counts indicated that 7-47% of all deer were missed during attempted total counts. Percent missed was much higher in mid-winter, when groups were small and denser vegetation types were used. Corrected counts should improve future herd management.

1985 FARM BILL - HOW IT WILL IMPACT IDAHO'S UPLAND WILDLIFE - PART II.

M. W. ANDERSON, Wildlife Biologist, Soil Conservation Service, Boise, Idaho 83702.

Idaho's Conservation Reserve Program has attracted 315,000 acres throughout Idaho into the program during 1986. Most of this land is being seeded to permanent cover for wildlife.....

STATUS OF THE SWAINSON'S HAWK IN SOUTHERN IDAHO

M. BECHARD. Department of Biology, Boise State University, Boise, ID 83725

Records of historical nest sites of the Swainson's hawk were compared to records from a survey of active nests in 1985. Historical records indicated the Swainson's hawk traditionally nested in willows and junipers that grew in riparian habitats throughout the shrub-steppe region of southern Idaho. The 1985 survey showed that the hawk continues to nest across the Snake River plain, but now nests more commonly in cottonwood trees growing on privately owned land that borders BLM land. Indications are that the species has not declined significantly since the state was first settled, but has probably undergone a redistribution to areas of irrigated hayland where nest trees and prey have become more plentiful.

AVIAN USE OF CAMPGROUND AND NON-CAMPGROUND SITES IN RIPARIAN ZONES OF NORTHERN UTAH.

J.A. BLAKESLEY and K.P. REESE. Department of Fish and Wildlife Resources, University of Idaho, Moscow, Idaho 83843.

Use of riparian habitat by fifteen breeding avian species was compared on campground (n=31) and non-campground (n=80) sites on the Wasatch-Cache National Forest of Northern Utah. Birds were censused in 1985 by the variable circular plot method. Vegetation and physical characteristics were recorded for each study plot. Multivariate analysis of variance showed that seven avian species responded favorably to campgrounds; eight species appeared to be adversely impacted by campgrounds. Significant differences between campground and non-campground sites for seven of the habitat variables help to explain avian responses to campgrounds. Management considerations are discussed.

MOVEMENTS OF MULE DEER IN RESPONSE TO HUNTING

C. G. BROWN, Idaho Department of Fish and Game, 5205 So. 5th Ave., Pocatello, ID 83204

Radio-collared deer, 11 in 1985 and 20 in 1986, were monitored through hunting season in Unit 73. Habitats were classified into high or low security. Deer, N=16, summering in low security areas made major movements to higher security habitat, while 15 deer in high security habitat remained on their summer range. Deer in low security habitat moved an average of 3.55 km. between relocations, significantly more than deer in high security habitat, 0.65 km. Total distance moved ranged up to 47 km. Doe deer in low security habitat (n=15) suffered 33% hunting mortality, while does (n=11) in high security areas had 9% mortality.

USE OF LORAN C NAVIGATIONAL EQUIPMENT IN WILDLIFE TELEMETRY STUDIES.

C.G. BROWN, J.W. CONNELLY, and J.W. UNSWORTH. Idaho Dept. of Fish and Game, 5205 5th Ave., Pocatello, ID 83205.

Traditionally, biologists have monitored radio-marked animals from aircraft by recording the area where the radio signal appears to be the loudest on a topographical map. This method is reasonably effective if terrain features allow the biologist to locate his position relative to the signal. However, problems may arise if the flight is over unfamiliar or featureless terrain. Use of navigational equipment to fix the aircraft's position can overcome these difficulties. We describe the use of a Loran C navigational system coupled to an onboard computer to monitor radio-marked animals from a fixed-wing aircraft.

FUNDING WILDLIFE RESEARCH: AN ADVENTURE IN CREATIVE FINANCING

J. W. Connelly. Idaho Department of Fish and Game, Pocatello, ID 83205

Traditional sources of funding for wildlife research have been severely reduced in recent years. Unfortunately, the needs of wildlife biologists and land managers for new or better information have not diminished. Biologists will now have to embrace non-traditional methods of obtaining funding to support essential research. Strategies for developing support for wildlife research are discussed and examples of current projects are presented.

DISTRIBUTION AND ABUNDANCE OF BALD EAGLES WINTERING ON NORTHERN IDAHO'S LAKE PEND OREILLE.

J. CRENSHAW. Idaho Department of Fish and Game, Sagle, ID 83860.

Weekly aerial censuses were conducted during the autumns and winters of 1985-86 and 1986-87 to determine the distribution and abundance of bald eagles on Lake Pend Oreille and the lower Clark Fork River in northern Idaho. Shifts in eagle distribution were found to be related to the availability of prey resources and to fluctuations in lake and river water levels. Peak eagle numbers recorded during both winters greatly surpassed previous mid-winter counts, adding to the significance of the area to wintering eagles.

THE NESTING STATUS OF THE COMMON LOON IN IDAHO AND WYOMING.

T. FITCH, and C. TROST. Department of Biological Sciences, Idaho State University, Pocatello, Id. 83201.

Surveys of the Common Loon (Gavia immer) were conducted in Idaho and western Wyoming in the summer of 1986, broadening the range of the survey conducted in 1985. In addition to presence/absence data, loon response to recorded calls was documented. Nests were found in western Wyoming, at relatively high elevations, and one pair nested on an apparently fishless lake. Results of the survey indicate southeast Idaho is an important migratory stopover for loons. Prospects for future study are elucidated.

KLEPTOPARASITISM IN THE AMERICAN WHITE PELICAN

S. HART. Department of Biology, Idaho State University, Pocatello, Idaho, 83209.

A population of American White Pelicans (Pelecanus erythrorhynchos) was observed foraging at the American Falls Reservoir near Pocatello, Idaho during the spring and summer of 1985 and 1986. These pelicans were observed to kleptoparasitize (steal food from) foraging groups of Double-crested Cormorants (Phalacrocorax auritus) in numbers greater than has been previously reported in the literature. The results suggest that kleptoparasitism may be a major source of food for this population of pelicans, and that the breeding colony of cormorants at the reservoir may be important to the continued breeding success of these pelicans. It was also found that the pelicans use other foraging strategies during this time as opportunities for utilizing these strategies arise. It appears that the optimal foraging strategy at any given time is influenced by the water level of the reservoir.

A CONCEPTUAL MODEL FOR POPULATION DYNAMICS OF MOUNTAIN GOATS.

J. HAYDEN. Idaho Department of Fish and Game, Pocatello, ID 83204.

Functional response curves are used to compare the population dynamics of mountain goats with elk in general terms. The roles of behavior, weather, and habitat resilience in density-regulation and implications for harvest of mountain goats are discussed.

BREEDING PRAIRIE FALCONS AND INDUSTRIAL CONSTRUCTION: A CONTRADICTION?

A. HOLTHUIJZEN and A. ANSELL, Idaho Power Co., P.O. Box 70, Boise, ID 83707; M. KOCHERT and L. YOUNG, Bur. Land Manage., 3948 Development Ave., Boise, ID 83705; and R. WILLIAMS, Pacific Gas and Electric Co., 3400 Crow Canyon Rd., San Ramon, CA 94583.

Behavior and productivity of breeding prairie falcons exposed to industrial construction activities were monitored in the Snake River Birds of Prey Area from 1984 through 1986. Four falcon pairs exposed to construction and 4 pairs selected as controls were observed each year. Productivity of all known breeding pairs in construction and control study locations was determined by ground surveys. Associations were not found between construction and behavioral variables. Behavioral patterns and mean productivity did not differ between study locations.

A SUMMARY OF THE HAGERMAN BOX CANYON ISSUE

S. LANGENSTEIN, BLM, SHOSHONE, ID. 83352

Since September 1968 resource conflicts have surrounded the Box Canyon alcove system near Hagerman, Id. Box Canyon contains the eleventh largest spring in the United States, providing approximately 852 cfs of cold, unpolluted fresh water from the Snake River Plain Aquifer.

BLM as a land administrator in Box Canyon has been directly involved in the proposed uses of this water and the associated lands in the canyon. This paper presents a short pictorial view of Box Canyon, a short chronology of the past management actions and a brief review of the processing of one right-of-way across public lands in the canyon. At issue are the management of habitat for four federal candidate threatened species plus other uses conflicting with water diversions.

A COOPERATIVE SHRUB RESTORATION PROGRAM FOR SOUTHCENTRAL IDAHO

L. MANGAN, BLM, Shoshone, ID 83352, C. KVALE, Idaho Dept. Fish & Game, Jerome, ID 83338, C. OGDEN, BLM, Shoshone, ID 83352

Unusually large wildfires coupled with severe winters from 1981-1985 caused radical big game movements and consequently serious resource problems in southcentral Idaho. These problems have included big game depredation on private property, expensive big game feeding programs and a substantial loss of animals on highways and railroads.

To solve the problem, we have initiated a Cooperative Shrub Restoration Program guided by a 7-member volunteer steering committee. We have outlined steps to help alleviate the problem including baiting on former big game winter ranges, special hunts to harvest "problem" animals and a comprehensive program to restore shrublands and reduce frequency of wildfires.

ACCESS IN IDAHO: CROSSROADS IN HUMAN/WILDLIFE INTERACTIONS

PAUL MOROZ. Forest Service Zone Biologist, Emmett and Lowman Ranger Districts, Boise National Forest.

This paper describes the development of human access in Idaho and discusses some primary effects upon wildlife resources through time. Beginning with established Indian tribal routes and ending with present day transportation systems, this overview addresses fundamental changes upon wildlife populations and habitats brought on by increased vehicular access. The paper concludes with several predictions and recommendations regarding future access in Idaho.

PRELIMINARY REPORT ON THE REINTRODUCTION OF SAGE GROUSE INTO THE SAWTOOTH VALLEY, IDAHO.

DAVID D. MUSIL. College of Forestry, Wildlife and Range Sciences, University of Idaho, Moscow, ID 83843.

The sage grouse population in the Sawtooth Valley has declined in recent years. Sixty-seven male and 22 female sage grouse were captured on leks from March to April 1986, in the Lemhi, Pahsimerio, and Big Lost Valleys of eastern Idaho, and were released to repopulate the valley. Of these, 5 males and 11 females were released with solar powered transmitters. At least 6 (37%) of the 16 radio-marked birds died during the first 2 months and at least 4 (25%) survived and became established in the valley the following summer and fall. One transmittered hen successfully nested. Future plans for the project will be discussed.

REPRODUCTIVE SUCCESS OF BURROWING OWLS (*Athene cunicularia*) USING ARTIFICIAL NEST BURROWS IN SOUTHEASTERN IDAHO.

B. Olenick. Department of Biology, Idaho State University, Pocatello, ID 83201.

Artificial nest burrows were implanted in southeastern Idaho for burrowing owls in the spring of 1986. Twenty two artificial burrows were inhabited with owls. Thirteen nesting attempts yielded an average clutch size of 8.3 eggs per breeding pair. Eight nests successfully hatched at least one nestling. In these nests, 67 of 75 eggs hatched (89.3%) and an estimated 61 nestlings (91.0%) fledged. An analysis of the egg laying and incubation periods showed that incubation commenced well after egg laying began. Average clutch size at the start of incubation was 5.6 eggs. Most eggs tended to hatch synchronously in all successful nests.

FAMILIAL RESEMBLANCE IN BLACK-BILLED MAGPIES (*Pica pica*)

L. REED and C. TROST. Department of Biological Sciences, Idaho State University, Pocatello, Idaho 83209

Black-billed Magpies, a member of the Corvidae family, are characterized by a striking white patch on a black wing. This patch appears to be part of an ensemble of social signals identifying age, sex, and individuality of the bearer. We have found that, in addition to these signals, that patch also contains a component of familial resemblance in juveniles. With the use of discriminant analysis, 68% (20 out of 29) individuals were correctly classified into their natal nest on the basis of wing patch structure. This is considerably higher than the predicted 14% correctly, but randomly classified. We present this data along with the possible significance of identifying kin from non-kin in relation to dominance and other social interactions.

ASPEN HABITAT: INVENTORY AND EVALUATION

W.T. RHUE, Caribou National Forest

Aspen habitat baseline inventory data and stand evaluation is a requirement for assessing managment options available to effectively manage aspen vegetative communities. This paper will present one method of aspen inventory.

ASPEN MANAGEMENT: METHODS AND PROBLEMS

J. JUAN SPILLETT, Wildlife Biologist, Caribou Nat'l Forest, Pocatello, ID 83201

The distribution and values of quaking aspen communities are briefly described. Aspen is the most widely distributed native tree species in North America, and aspen habitats are of major importance for wildlife. Almost 200 vertebrate wildlife species (56 mammals and 135 birds) are associated with aspen.
Most aspen stands in the western U.S. are old and/or decadent. Proper treatment is needed to retain seral aspen communities and to produce optimum wildlife habitat. Four basic treatment methods may be used to rejuvenate aspen: (1) Cutting, (2) Prescribed Fire, (3) Herbicides, and (4) Combinations of Methods. Advantages and disadvantages or problems associated with each aspen treatment method are discussed.

RESTORATION, MONITORING, AND OFF-SITE MITIGATION: TECHNIQUES FOR ALLEVIATING RIPARIAN LOSSES

M. STEVENS. Environmental Protection Agency, Boise, Idaho 83702

Mitigation was required for three hydroelectric projects; Pigeon Cove, Cedar Draw (Snake River), and Felt Dam (Teton River). On-site restoration occurred through evaluating species composition in each community type through the HEP process. Revegetation goals defined for each cover type are based on percent cover and species composition which occurred in native, undisturbed plant communities adjacent to the disturbed area. Monitoring and definition of "revegetation success" will occur through establishment of permanent quadrats in each cover type. Wetland creation, upland restoration, and off-site mitigation were all required for compensation for lost wetland functions and values.

MULE DEER RESPONSE TO HELICOPTER DISTURBANCE ON WINTER RANGE

T. THOMAS. Department of Biology, Montana State University, Bozeman, MT. 59717.

Effect of helicopter disturbance during trend counts on mule deer winter home range fidelity was investigated in southeastern Idaho in 1986. Radiomarked deer showed high fidelity to specific winter range segments. Home range size averaged 1.8 square kilometers. Radiomarked deer were not found to significantly alter home range size or make extensive movements in relation to helicopter disturbance. Only 6 percent of home range perimeter points were established on helicopter trend flight days.

DESIGN OF A WETLAND COMPLEX TO MITIGATE FOR ROADWAY IMPACTS IN COUGAR BAY, COEUR D'ALENE, IDAHO.

R. B. TIEDEMANN. Idaho Transportation Department, Boise, Idaho, 83707.

Federal policy requires mitigation in the form of restoration or compensation for impacts to wetlands for which there is no "practicable alternative". This paper documents the first large scale, comprehensive effort by the Idaho Transportation Department to compensate for the loss of 3.2 acres of wetland in Cougar Bay, at the western edge of Coeur d'Alene Lake. It describes the design of a 28 acre wetland complex, the planning process which led to a consensus among the resource and regulatory agencies, and demonstrates a tool described as the FHWA Method for Wetland Functional Assessment (Adamus Method).

Regulators will be interested to learn how the mitigation proposal gained acceptance from the resource agencies, restorationists will be interested to learn the details of the wetland design, and wildlife managers will be interested to learn how habitat for species of interest was incorporated into the project.

DEVELOPMENT AND USE OF A WETLAND BANK AS A MITIGATION ALTERNATIVE IN ID.

R. B. TIEDEMANN. Idaho Transportation Department, Boise, Idaho, 83707.

Federal policy requires the Idaho Transportation Department (ITD) avoid impacts to wetlands by alternative roadway locations or benign construction techniques. Impacts to wetlands for which there is no "practicable alternative" require mitigation in the form of restoration or compensation.

Wetland restoration is, at times, impossible to accomplish on-site, comes with such risk that successful mitigation cannot be assured, or can be accomplished only at extrordinary cost. Use of a previously constructed, off-site wetland may be appropriate in these situations to compensate for wetland losses.

This paper documents development of the wetland banking concept in the State of Idaho and the consensus building which has led to a draft memorandum of agreement. Wildlife professionals will learn the issues associated with wetland banking and their resolution by an inter-agency team. The mechanics of the wetland bank and the activities for which it may be used will be described.

HISTORY AND STATUS OF CALIFORNIA BIGHORN SHEEP IN IDAHO

DALE E. TOWEILL, Principal Wildlife Research Biologist, Idaho Fish and Game, Boise, ID 83714.

California bighorn sheep, extirpated from Idaho by 1940, were reintroduced into Owyhee County in 1963, with animals obtained from Chilcotin, British Columbia. Initial transplant stock was placed in the East Fork of the Owyhee River and Little Jack Creek drainages between 1963 and 1967. Growth of these herds was sufficient to allow limited sport hunting beginning in 1969, and trapping for transplant beginning in 1980. Transplant operations and "pioneering" by bighorns (including some from adjacent herds established in Nevada and Oregon) have resulted in establishment of herds throughout the Owyhee River drainage, along the breaks south of the Snake River, and in the West Fork Bruneau and Jarbidge River drainages. Research on these herds is currently ongoing.

RESOURCE PARTITIONING BY BOBCATS AND COYOTES IN A CONIFEROUS FOREST

DALE E. TOWEILL, Principal Wildlife Research Biologist, Idaho Fish and Game, Boise, ID 83714.

Ecology of bobcats and coyotes was studied in Oregon's Cascade Range between October 1982 and June 1984. Bobcats did not select for any of six vegetation types or nine classes of slope. South-southeasterly aspects were selected. Bobcats moved an average of 10.0 km/24 h period. and preyed on snowshoe hares, black-tailed deer, and a variety of rodent species. Coyotes showed significant selection for particular vegetation types by season and selected slopes of less than 21 degrees. Coyotes also selected southerly aspects. Coyotes moved an average of 16.2 km/24 h period; their diet featured fruit, rodents, black-tailed deer, and snowshoe hares. Although diets were similar, these two predators used their habitat differently, and each species' activity was out of phase.

NEST SITE CHARACTERISTICS AND NESTING SUCCESS OF REDHEADS AND OVER-WATER-NESTING MALLARDS AT BEAR LAKE NWR.

R. W. TRESSLER, JR. and K. P. REESE. Department of Fish and Wildlife, University of Idaho, Moscow, ID 83843.

Habitat characteristics of 59 redhead and 38 over-water mallard nest sites as well as 182 random sites were measured in 1985 and 1986. Redhead and mallard nest sites differed from random sites in several variables in both years. Redhead and mallard nest sites overlapped a great deal in the variables measured, and differed in only two variables in each of the two years. During 1985 and 1986 redheads had nest success rates of 22 and 32% respectively, while over-water-nesting mallards had nest success rates of 47 and 46% in the 2 years respectively. Upland-nesting mallards had nest success rates of 18% in 1985 and 26% in 1986.

WINTER ECOLOGY OF ROUGH-LEGGED HAWKS IN SOUTHEASTERN IDAHO

J. Watson and R. Eng. Department of Biology, Montana State University, Bozeman, MT 59717

A radio-telemetry study of rough-legged hawks was conducted in sagebrush steppe habitat on the Idaho National Engineering Lab from 1981-83. Three hawks drifted among ranges separated by 33 to 70 km. Four birds exhibited fidelity to ranges 70 to 541 km^2 in size. Daily movements were influenced by power pole distribution and rabbit carrion on associated highways. Temporal distribution of the hawk population was influenced by rabbit carrion availability and snow cover over 10 cm which accounted for 65% of the variability in hawk numbers. Hawks consumed carrion and voles in significantly different proportions on the site and adjacent farmland. Inter-winter range fidelity was exhibited by 3 of 22 wing-marked hawks and at least 3 birds wintered in states adjacent to Idaho.

RESOLVING CONFLICTS BETWEEN ROOSTING RAVENS AND ELECTRIC POWER TRANSMISSION.

L. YOUNG, Bur. Land Manage., 3948 Development Ave., Boise, ID 83705, K. ENGEL, J. ROPPE, and C. WRIGHT, Pacific Power and Light Co., 920 SW 6th Ave., 380 PFFC, Portland, OR 97204.

Pacific Power and Light Co.'s Malin to Midpoint 500 kV transmission line supports the world's largest roosting aggregation of common ravens (Corvus corax). Fecal contamination of insulators affects operation and maintenance of the line. Wooden pegging and fiberglass shields were installed on towers at and adjacent to a major roost in southwestern Idaho during June 1985. Pegging and shields protected insulators and altered ravens' distribution on towers. Ravens appeared to habituate to pegging and shields. Ravens continued to use the roost until it was abandoned for the season in August 1985, reoccupied the roost in March 1986, and used the roost throughout the 1986 season.