IDAHO

DEPARTMENT OF FISH AND GAME

Jerry M. Conley, Director

Project W-168-C-9

FEDERAL AID TO WILDLIFE RESTORATION

PROGRESS REPORT

Study I, Job 1: Wildlife Research Coordination

Prepared By

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Assistant Bureau Chief

July 1, 1991 to June 30, 1992

September 1992

Boise, Idaho

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TABLE OF CONTENTS

PROGRESS REPORT

STATEWIDE WILDLIFE RESEARCH

STATE: Idaho JOB TITLE: Wildlife Research Coordination
PROJECT: W-168-C-9
STUDY: I
JOB: 1
PERIOD COVERED: July 1, 1991 to June 30, 1992

ABSTRACT

Project supervision was maintained for all wildlife research projects including study plan development, document preparation, report editing, submitting project reports, and budget preparation. Federal aid coordination was provided for all wildlife research, management, and land development projects.

The Idaho Department of Fish and Game is in the process of developing study plans for two new wildlife research projects; one on mule deer in southwestern Idaho and another on Canada geese in southwestern Idaho. Study plans are also being prepared for three new graduate student projects. Two projects will focus on mule deer ecology (Regions 3 and 4) and one project will investigate the impacts of elk and cattle on riparian areas in the Salmon area (Region 7).

OBJECTIVES

To plan project work and to provide supervision and administrative support for all P-R funded projects.

Meetings and Presentations

Date	Meeting	Location
06/11/91	Animal Restraint Workshop	Boise
06/16/91	Nongame Meeting	Boise
06/18/91	Turkey Enhancement Meeting	Boise
08/05/91	Conflict Management Seminar	Boise
08/13-14/91	Western Wild Turkey Workshop	Durango, CO
08/15/91	Nongame Meeting	Boise
08/17-18/91	Project Wild Workshop	Coeur d'Alene
08/26-30/91	Federal Aid Meeting	Juneau, AK
10/31/91	New Employee Orientation	Boise
11/21/91	U of ID Coop Unit Meeting	Moscow, ID
11/25-26/91	Federal Aid Meeting	Portland, OR
12/07/91	Black Bear Task Force Meeting	Boise
01/04/92	Black Bear Task Force Meeting	Boise
01/14/92	Black Bear Public Meeting	Coeur d'Alene
01/15/92	Black Bear Public Meeting	Sandpoint
01/21/92	Black Bear Public Meeting	McCall
01/22/92	Black Bear Public Meeting	Boise
01/23/92	Black Bear Public Meeting	Weiser
01/27/92	Region 4 Bureau Coordination Mtg.	Jerome
01/28/92	Region 5 Bureau Coordination Mtg.	Pocatello
01/28/92	Black Bear Public Meeting	Idaho Falls
01/29/92	Region 6/7 Bureau Coordination Mtg.	Idaho Falls
01/29/92	Black Bear Public Meeting	Rexburg
02/04/92	Black Bear Public Meeting	Twin Falls
02/05/92	Black Bear Public Meeting	Hailey
02/13/92	Performance Appraisals Seminar	Boise
02/22-23/92	Black Bear Task Force Meeting	Boise
03/17/92	Region 1 Personnel Meeting	Coeur d'Alene
03/19/92	Region 2 Black Bear Meeting	Lewiston
03/23/92	Region 3/4 Black Bear Meeting	Nampa
03/25/92	Region 5/6 Black Bear Meeting	Idaho Falls
04/02/92	Mt. FWP/Idaho Bear Meeting	Boise
04/6-7/92	Mule Deer Research Meeting	Nampa
04/27/92	Federal Aid Meeting	Boise
05/01/92	Bear Baiting Mtg./USFS	Boise
05/06/92	U of ID Presentation on Bear Mgmt.	Moscow
05/08/92	IDFG Commission Meeting	Orofino
05/09/92	Black Bear Baiting Task Force Mtg.	Boise
05/18-22/92	Inservice Training School	Boise
05/26/92	Project Wild Conference	McCall
06/13/92	Black Bear Task Force Meeting	Boise

FINDINGS

Project documentation, budgets, reports, and personnel evaluations were completed for each field project. A general summary of the activities of the research biologists during the year follows.

PROGRESS REPORT

STATEWIDE WILDLIFE RESEARCH

STATE: Idaho **TITLE:** Statewide Wildlife Research
PROJECT NO.: W-160-R-19
SUBPROJECT NO: 5 **SUBPROJECT:** California Bighorn Sheep Ecology
STUDY NO: I
JOBS NO: 1-3
PERIOD COVERED: July 1, 1991 to June 30, 1992

ABSTRACT

Job 1. Distribution

Completion report submitted on 9/1/91.

Job 2. Aerial Observability

Completion report submitted on 9/30/92. One hundred twenty-three sightability trials have been completed. The helicopter crew was successful in locating 75 (61%) of the total. Four helicopter aerial surveys of the Little Jack's Creek study area were conducted during past year. Since 1983 bighorn sheep surveys on the Little Jacks creek study area have displayed a variability in the number of ewes observed of ± 17% and a variability of rams of ± 30%. A sightability model was developed and tested.

Job 3. Standard Survey Techniques

Helicopter and fixed winged airplane disturbance caused radio-collared sheep to move long distances (Mean = 3.9 km.). Bighorns commonly moved from the stratification unit before the helicopter arrived. The predictability of estimates of sheep in the stratification units was low (44%). These large-scale movements preclude the use of most population estimation techniques. Efforts were concentrated on developing a sightability model. A job completion report was submitted on 9/30/92.

PROGRESS REPORT

STATEWIDE WILDLIFE RESEARCH

STATE: Idaho **TITLE:** Statewide Wildlife Research
PROJECT NO.: W-160-R-19
SUBPROJECT NO: 5 **SUBPROJECT:** California Bighorn Sheep Ecology
STUDY NO: II
JOBS NO: 1-3
PERIOD COVERED: July 1, 1991 to June 30, 1992

ABSTRACT

Completion Reports have been submitted for all jobs in this study.

Job 1. Habitat Availability

Habitat mapping has been completed. Fifteen habitat types have been identified in the study area. Field sampling has been conducted in each habitat type to determine cover, slope, aspect and shrub height. Digital Elevation Map (DEM) tapes have been obtained and are being used to describe topography. The number of acres of each habitat type have been determined.

Job 2. Potential Disturbance Factors

Traffic counters placed in Horse Basin and at the mouth of Little Jacks Creek indicated a sporadic flow of traffic. Visitors were few but known uses included: photographing bighorn sheep, hunting, fishing, trapping, riding mountain bikes and motorcycles, four-wheeling, camping, and escaping from the crowds.

Job 3. Habitat Selection

Bighorn sheep and cattle tended to use different parts of the study area. Bighorns generally used the steeper slopes while cattle tended to stay on the flatter terrain. There is potential for competition between cattle and livestock where easy access to water exists. The average distance from bighorn sheep locations to water ranged from 0.6 km in September to 2.0 km in November. Rams and ewes used similar parts of the habitat but rams tended to range further from large vertical faces than did ewes. Ram observations averaged 1.0 km from water and 82 m from escape terrain. Ewe observations averaged 1.2 km from water and 68 m from escape terrain. Rams tended to use the plateaus above the canyon rims more than ewes did. Bighorns used the Wyoming big sagebrush type more than any other. Eighty-two percent of the initial locations was in one of the sagebrush or grass types.

MEETINGS AND PRESENTATIONS

Date	Name	Location
Jul	HIP Mtg. Reviewed Pheasant Res.	Jerome
	Boise Int. Agen. Fire Cent.	Boise
Oct	Research Proj. Cord. Mtg.	Boise
	North Dakota Bighorn Eval.	North Dakota
Dec	Region 3 - Goose Research	Boise
	Region 4 - Goose Research	Jerome
	Region 5 - Goose Research	Pocatello
Feb	Region 3 Dist. Mtg.	Boise
	UofI/Oz Garton Sight. Mod. Dev.	Moscow
	BOW - Bombing Range Proposal Mtg.	Boise
Mar	Air Guard - Bombing Range Mtg.	Boise
Apr	NW Sec. - Ida Chap. Mtg	Moscow
	Hunt. Saft.	Boise
	Study Coord.	Boise
	CPR Trng.	Boise
	Phys. Ass. & Firearms Trng.	Boise
May	Research Coord. Mtg. (BLM)	Boise

REPORTS, PUBLICATIONS, ARTICLES

Bodie, W.L., E. Taylor and M. McCoy. 1990. Status and Distribution of California Bighorn Sheep in Idaho. Proc. Northern Wild Sheep and Goat Council 1990: In Press.

_____. Bighorn Sheep Ecology. 1991. Prog. Rept., Project W-160-17. Idaho Department of Fish and Game, Boise.

PROGRESS REPORT

STATEWIDE WILDLIFE RESEARCH

STATE:	Idaho	**JOB TITLE:**	California Bighorn Sheep Ecology
PROJECT:	W-160-R-19		
SUBPROJECT:	5	**STUDY NAME:**	Bighorn Sheep-Cattle Interactions
STUDY:	III		
JOB:	1, 2 and 3		

PERIOD COVERED: July 1, 1991 to June 30, 1992

ABSTRACT

Sixty-seven fixed-wing location flights were flown from April 1988 through November 1991 in the Little Jacks Creek study area. One-thousand and ninety-four locations of radio-collared sheep and 2,185 groups of cattle were recorded. The study area was divided into 20 pastures based on topographic features. Monthly and cumulative densities of radio-collared sheep and cattle were determined for each pasture and month. Cattle were found primarily in pastures with slopes less than 40%. Bighorn sheep were generally found in pastures with slopes steeper than 40%. Overlap in habitat use between bighorn sheep and cattle occurred during the spring when rams moved onto flats adjacent to canyons. Statistical analyses are being conducted to determine what habitat factors predict cattle and sheep habitat use and whether there is any response by bighorns to the presence of cattle.

Data have mostly been analyzed and a completion report is being prepared.

PROGRESS REPORT
STATEWIDE WILDLIFE RESEARCH

STATE: Idaho
TITLE: Statewide Wildlife Research
SUBPROJECT: Sage Grouse Ecology
SUBPROJECT NO.: 9
PERIOD COVERED: July 1, 1991 to June 30, 1992

PROJECT NO: W-160-R-19
STUDY: I
JOBS: 1 and 2

ABSTRACT

Study I. Sage Grouse Response to a Controlled Burn.

Job 1. Movements, distribution, survival, and reproduction of sage grouse before and after a fire.

The movements, distribution, survival and reproduction of sage grouse (Centrocercus urophasianus) are being investigated on the upper Snake River Plain of southeastern Idaho. A portion of the study area was burned in late summer 1989. Thus, we are in the post-burn phase of a project aimed at assessing the response of sage grouse to a prescribed burn. A total of 164 sage grouse were trapped and marked during spring 1992. Thirty-four of these birds (21 percent) were equipped with radios. Females nested from < 1 to > 12 km from the lek on which they were captured (N=24, x=3.1 km). Nesting success of radio-marked grouse increased varied from 41 to 90% during 1987-92. Although sample sizes were relatively small, survival appeared to remain constant over this same period.

Job 2. The effects of a controlled burn on sage grouse winter and nesting habitat.

The effects of fire on sage grouse winter and nesting habitat on the Big Desert is being investigated. Nest site data were collected on 26 nests during 1992. Sagebrush (Artemisia spp.) canopy cover at nests ranged from 1 to 30% for 1986 through 1992. Similar values were obtained for sagebrush cover at random sites. Vegetation characteristics were also measured for 31 sage grouse winter use sites and 62 sites randomly located throughout the study area.

Meetings and Presentations

Apa, A. D., K. P. Reese, and J. W. Connelly. 1991. Predation rates on actual and simulated nests of Columbian sharp-tailed grouse in southeastern Idaho. Presented at the 17th Western States Sage and Columbian Sharp-tailed Grouse Workshop. July 24-16. Pocatello, ID.

Apa, A. D., K. P. Reese, and J. W. Connelly. 1992. Nesting habitat of sympatric sage and Columbian sharp-tailed grouse in southeastern Idaho. Presented at the annual meeting of the Northwest Section, The Wildlife Society. April 22-25. Moscow, ID.

Apa, A. D., K. P. Reese and J. W. Connelly. 1992. Seasonal habitat use of sympatric sage and Columbian sharp-tailed grouse in southeastern Idaho. Presented at the annual meeting of the Society for Range Manage. Jan. 10-11. Spokane, WA.

Connelly, J. W. 1991. Managing sage grouse in the Intermountain West. R. O. Butler Lecture, South Dakota State Univ. Oct. 30. Brookings, SD.

Connelly, J. W. 1991. The ecology and management of sage grouse in the Intermountain West. Faculty Seminar, Utah State Univ. Nov. 20. Logan, UT.

Connelly, J. W. 1991. The effects of predators on upland nesting birds. Dept. of Wildlife and Fisheries lecture, Utah State Univ. Nov. 20. Logan, UT.

Fischer, R. A., K. P. Reese, and J. W. Connelly. 1991. Preliminary findings of the effects of prescribed fire on the ecology of sage grouse in southeastern Idaho. Presented at the 17th Western States Sage and Columbian Sharp-tailed Grouse Workshop. July 24-26. Pocatello, ID.

Fischer, R. A., K. P. Reese, and J. W. Connelly. 1992. The effects of fire on nesting and brooding sage grouse in southeastern Idaho. Presented at the annual meeting of the Northwest Section, The Wildlife Society. April 22-25. Moscow, ID.

Meints, D. R., J. W. Connelly and K. P. Reese. 1991. Seasonal movements, habitat use and productivity of Columbian sharp-tailed grouse in southeastern Idaho. Presented at the 17th Western States Sage and Columbian Sharp-tailed Grouse Workshop. July 24-26. Pocatello, ID.

Meints, D. R., J. W. Connelly, K. P. Reese, A. R. Sands and T. P. Hemker. 1992. Habitat suitability index for Columbian sharp-tailed grouse. Presented at the annual meeting of the Northwest Section, The Wildlife Society. April 22-25. Moscow, ID.

Reese, K. P. 1991. Evaluation of wildlife use of CRP lands in southeastern Idaho. Presented at the annual Idaho Cooperative Fish and Wildlife Research Unit Cooperators Meeting. Nov. 21. Moscow, ID.

Publications

Brown, C. G. 1992. Movements and migration patterns of southeast Idaho mule deer. J. Wildl. Manage. 56:246-253.

Connelly, J. W., W. L. Wakkinen, A. D. Apa, K. P. Reese. 1991. Sage grouse use of nest sites in southeastern Idaho. J. Wildl. Manage. 55:521-524.

Robertson, M. D. 1991. Winter ecology of migratory sage grouse and associated effects of prescribed fire in southeastern Idaho. M.S. Thesis, Univ. of Idaho, Moscow. 88pp.

Wakkinen, W. L., K. P. Reese and J. W. Connelly. 1992. Sage grouse nest locations in relation to leks. J. Wildl. Manage. 56:381-383.

Connelly, J. W. 1992. Trends in the editorial process for publications of The Wildlife Society. Wildl. Soc. Bull. In press.

Meints, D. R., J. W. Connelly, K. P. Reese, A. R. Sands and T. P. Hemker. 1992. Habitat suitability index procedure for Columbian sharp-tailed grouse. Univ. of Idaho, College of For., Wildl. and Range Bull. In press.

Wakkinen, W. L., K. P. Reese, J. W. Connelly, and R. A. Fischer. A field test of an improved spotlighting technique for capturing sage grouse. Wildl. Soc. Bull. In press.

Giesen, K. M. and J. W. Connelly. Guidelines for management of Columbian sharp-tailed grouse habitats. Wildlife Soc. Bull. submitted.

Meints, D. R., K. P. Reese and J. W. Connelly. Nest Site characteristics and reproductive success of Columbian sharp-tailed grouse in southeastern Idaho. J. Wildl. Manage. Submitted.

Musil, D. D., J. W. Connelly and K. P. Reese. Movements, survival and reproduction of sage grouse translocated into central Idaho. J. Wildl. Manage. Submitted.

Wakkinen, W. L., J. W. Connelly, and K. P. Reese. Sage Grouse nest site characteristics in southeastern Idaho. J. Wildl. Manage. Submitted.

Brown, C. G. and J. W. Connelly. Mule deer habitat selection and vulnerability to hunting in southeastern Idaho. Peer review.

Brown, C. G. and J. W. Connelly. Mortality of southeastern Idaho mule deer under three hunting regimens. Peer review.

Musil, D. D., K. P. Reese and J. W. Connelly. Nesting and summer habitat use by sage grouse translocated into central Idaho. Peer review.

PROGRESS REPORT
STATEWIDE WILDLIFE RESEARCH
RESEARCH COORDINATION REPORT
COEUR D'ALENE ELK ECOLOGY

DAVID J. LEPTICH, SENIOR WILDLIFE RESEARCH BIOLOGIST

STATE: Idaho **TITLE:** Statewide Wildlife Research
PROJECT NO.: W-160-R-19
SUBPROJECT NO: 23 **SUBPROJECT:** Coeur d'Alene Elk Ecology
STUDY NO: I-III

PERIOD COVERED: July 1, 1991 to June 30, 1992

ABSTRACT

Study 1. Bull Elk Habitat Use

I am currently monitoring 64 radio-collared elk (34 bulls, 30 cows) in the Coeur d'Alene River drainage. They are monitored once every 7-10 days throughout the year as weather permits. Monitoring effort is increased to 2-3 day intervals during the hunting season.

The cooperative Idaho Department of Fish and Game - U.S. Forest Service elk habitat use study is in its second field season. Approximately 500 ECODATA vegetation plots from elk relocation sites have been completed. This study examines the structure and composition of vegetation at elk use sites as well as physical (aspect, etc.) characteristics of the site. Data analysis will take a multivariate approach to compare elk habitat use between sexes and among seasons. Soil/vegetation mapping is in progress. One more field season is planned.

I was able to secure GIS capability for the CDA elk project through outside funding. The EPPL7 GIS software package has been installed. Recent (1991) satellite imagery covering the CDA study area has been purchased by the USFS and will be available to the project this fall. Unsupervised and supervised classification of forest cover types will commence at that time and should be finished by next summer.

Study 2. Elk Sightability Models

The final field season of sightability model data collection was completed in March 1992. Fifty-five new model data points were collected this year. These have been incorporated into the model data base and resulted in the addition of snow cover as an independent variable in the model. A total of 119 data points or 41.8% of the entire model data base has been contributed by the CDA elk project.

Four sightability model validation survey flights were conducted at the Starkey experimental forest in LaGrande, Oregon. The addition of snow as a model variable greatly improved model performance. The results of the validation flights and overall model performance will be submitted for publication this fall.

Study 3. Elk Habitat Security Characteristics and Hunting Season Mortality Rates

In cooperation with the University of Montana's Institute of Tourism and Recreation Research, an elk hunter survey was developed. It was designed to provide information on hunter density and distribution, preferred hunting strategies by cover type, and hunter success under various combinations of strategies and cover types. The survey was designed and pretested in late summer 1989. Two-thousand-seventy surveys were distributed to Unit 4 hunters, primarily during the 1989 and 1990 general elk seasons, and 1271 were returned. Details of methodology and complete results are available in Yuan (1992).

No elk were killed during either the muzzleloader or archery seasons. Seven bull and no cow elk were killed during the general rifle season. All elk taken during the hunting season were presumed to be legal kills. Five were recovered by sportsmen and turned in to Department personnel and two were unrecovered wounding losses.

Overall Unit 4 mortality rates for 1988 through 1990 combined were 0.52 for bulls and 0.12 for cows. A new hunting season framework initiated in 1991 reduced bull mortality approximately 10 percent. Survival rates among road access treatment areas maintained a trend towards increasing survival with decreasing open road densities. Bull mortality remained $\geq$twice as high in the roaded treatment as it was in the unroaded treatment.

MEETINGS AND PRESENTATIONS

Date	Purpose	Location
Aug	Hunter education instruction	CDA
	IDFG, BOW reorganization	Lewiston
Sept	USFS, hunting season road closures	CDA
	UI, USFS, coop. habitat use study	Moscow
Oct	ODFW, sightability validation flights	CDA

Date	Purpose	Location
Nov	Elk vulnerability working group	Spokane
Dec	IDFG, new employees	CDA
Jan	UM, elk hunter survey	CDA
	IDFG, big game regs. n. district	Sand Point
	IDFG, big game regs. s. district	CDA
Feb	IDFG, Wildlife Bureau big game regs.	CDA
	IDFG, Reg 1 research/mgt coordination	CDA
Mar	UI, elk sightability research	Enaville
	Silver Valley Sportsmen's Club	Osburn
	IDFG,Reg. 1 personnel	CDA
	Public meeting, big game regs.	Sand Point
	IDFG, elk project revision	CDA
	"Idaho Elk Country"	Rathdrum
Apr	IDFG, grizzly and caribou research	Bonners Ferry
	IDFG, Administration meeting	CDA
	USFS, elk vulnerability	Libby MT
	CDA high school, elk biology	CDA
	UI, elk sightability	Moscow
May	IDFG, elk project revision	CDA
	USDA, disease testing captive elk	Prichard
	WSU, field necropsy training	Pullman
June	Public meeting, bear plan	CDA
	Free fishing day clinic	CDA
	USFS, basic habitat typing	Prichard

Presentations

Leptich, David J. 1991. CDA elk project overview. IDFG new employees tour. Coeur d' Alene, Idaho.

Leptich, David J. 1992. CDA Elk Project- preliminary results of the mortality and sightability studies. Wildlife Bureau Coordination meeting. March 1992. Coeur d' Alene, Idaho.

Leptich, David J. 1992. CDA elk mortality slide show. Silver Valley Sportsmen. Osburn, Idaho.

Leptich, David J. 1992. "Idaho Elk Country". Rathdrum Bible Church. Rathdrum, Idaho.

Leptich, David J. 1992. Elk vulnerability and mortality slide show. Kootenai National Forest Supervisor's office staff. Libby, Montana.

Leptich, David J. 1992. Ungulate biology. CDA high school biology classes (5). Coeur d' Alene, Idaho.

REPORTS, PUBLICATIONS, ARTICLES

Leptich, D.J., and P. Zager. 1991. Bull elk habitat use. Prog. Rep., Proj. W-160-R, Study I. ID Dept. of Fish and Game, Boise.

Leptich, D.J., and P. Zager. 1992. Elk habitat security characteristics and hunting season mortality rates. Prog. Rep., Proj. W-160-R, Study III. ID Dept. of Fish and Game, Boise.

Leptich, D.J., and P. Zager. 1992. Elk sightability. Prog. Rep., Proj. W-160-R, Study II. ID Dept. of Fish and Game, Boise.

Leptich, D.J., 1992. Winter habitat use by hen pheasants in southern Idaho. J. Wildl. Manage. 56:376-380.

LITERATURE CITED

Yuan, M. 1992. Estimating the effect of elk hunter behavior on hunter success 1989-1990. ITTR research rept. 19., Univ. Mont., Missoula, Mont. 137 pp.

PROGRESS REPORT

STATEWIDE WILDLIFE RESEARCH

STATE: Idaho **TITLE:** Statewide Wildlife Research
PROJECT NO.: W-160-R-19
SUBPROJECT NO: 26 **SUBPROJECT:** Region 3 Ring-necked Pheasant Productivity Study
STUDY NO: I
JOB NO: 1
PERIOD COVERED: July 1, 1991 to June 30, 1992

ABSTRACT

Job 1. Factors affecting fall recruitment of pheasants in southwestern Idaho.

A recruitment study of a ring-necked pheasant population in Canyon County, Idaho was initiated in February 1990. Fifty-seven radio-collared hens were followed through spring dispersal, nesting, and brood-rearing periods. Data were collected on hen survival, nest success, and brood survival to develop a recruitment model for the population. Initial results estimate fall recruitment to be 0.741 juvenile hens for each hen entering the breeding season. Better survival estimates are needed to fully evaluate population trends. Data were also collected on nest success in relation to nest site selection and habitat availability. Early nest attempts in grain fields were most successful, producing more broods than all other cover types combined.

The student is currently analyzing field data and preparing his thesis.

PROGRESS REPORT

STATEWIDE WILDLIFE RESEARCH

STATE: Idaho **TITLE:** Statewide Wildlife Research
PROJECT NO.: W-160-R-19
SUBPROJECT NO: 27 **SUBPROJECT:** Region 4 Ring-necked Pheasant Productivity Study
STUDY NO: I
JOB NO: 1
PERIOD COVERED: July 1, 1991 to June 30, 1992

ABSTRACT

Job 1. Factors affecting fall recruitment of pheasants in south-central Idaho.

A recruitment study of a ring-necked pheasant population in Gooding County, Idaho was initiated in February 1990. Forty-eight radio-collared hens were followed through spring dispersal, nesting and brood-rearing periods. Twenty-eight were local hens and 20 were transplanted wild hens. Data were collected on hen survival, nest success, and brood survival to develop a recruitment model for the population. Overall hen survival for the monitoring period was 0.452. The main causes and times for hen mortality were by predation just after release and during the spring dispersal period, and by swathing during nest incubation. Canine predation was the most common type of predation. Total nest success for the reproductive period was 32% and hen success was 54%. A recruitment model indicated an increase of 8% in the population. Local hens had two times the survival rate of transplanted hens. Transplanted hens were two times more likely to hatch a nest than local hens.

The student is currently attending classes and analyzing field data.

PROGRESS REPORT

STATEWIDE WILDLIFE RESEARCH

STATE:	Idaho	**JOB TITLE:**	Statewide Wildlife Research
PROJECT:	W-160-R-19		
SUBPROJECT #:	28		
STUDY:	I	**STUDY TITLE:**	McCall Turkey Ecology Project
JOB:	1		

PERIOD COVERED: July 1, 1991 to June 30, 1992

ABSTRACT

Job 1. Productivity and habitat use of wild turkey in southwestern Idaho.

The knowledge of habitat use by Merriam's wild turkeys (Meleagris gallopavo merriami) is limited. Past wild turkey research has focused on the Eastern wild turkey (M. g. silvestris) in the eastern United States. Few studies have been conducted on the Merriam's subspecies, particularly in non-native habitat. Quantitative data on nesting habitat, brood habitat, and roosting sites are lacking. My proposed study will provide a detailed assessment of physical and vegetative characteristics of these habitats, as well as use and availability data, seasonal movements, home range, and poult and hen survival. Since the Merriam's subspecies is not indigenous to Idaho, results from this study will be useful in managing critical habitat components and providing guidelines for evaluating potential introduction sites.

COORDINATION REPORT
STATEWIDE WILDLIFE RESEARCH

STATE: Idaho **TITLE:** Statewide Wildlife Research
PROJECT NO.: W-160-R-19
SUBPROJECT NO.: 29 **SUBPROJECT:** White-tailed Deer/Forest Management Relations
STUDY NO.: I

PERIOD COVERED: July 1, 1991 to June 30, 1992

During the winters of 1991 and 1992, 29 white-tailed deer were radio-collared at Priest Lake, Idaho. These deer were monitored on their winter ranges and 493 locations were recorded. Vegetative and physiographic measures were taken at each of these locations during the summer of 1992 to define winter habitat use. The availability of given habitats will be compared against the proportion of use they receive. During the 1992 winter field season, snow-depths were recorded in sites representative of old growth timber, mature timber, pole timber, and low shrub clearcut stand types. Snow depths were also recorded at 80 sites representative of actual deer locations. These data will be used to test models developed by Pauley (1990) for predicting deer use of timber structural types based on snow depths. Observed use of timber structural types will be compared against model predictions, and the validity of the models discussed. A sample of 14 clearcuts was selected to evaluate spring and summer use of clearcuts by Priest Lake white-tailed deer. During the 1991 summer field season, pellet-group transects were placed in each unit. These plots were cleared of all pellet-groups following snowmelt in March of 1992. Spring pellet-group surveys were conducted during mid-June and summer surveys were be carried out in late August. Chi-square goodness of fit, linear regression, and nonparametric rank correlation procedures will be used in analysis.

Reports:

Secord, M., S. Winslow, and P. Zager. 1992. White-tailed deer ecology. Study I. Habitat use by Priest Lake white-tailed deer. Fed. Aid Wildl. Restor., Proj. W-160-R-19, Subproj. 29. ID Dept. Fish and Game, Boise.

Presentations:

July & August 1991	Priest Lake Ranger District Campfire Program -- Priest Lake white-tailed deer ecology.
November 1991	Project Wild, Clark Fork, Idaho -- White-tailed deer research techniques and results.
February 1992	Kootenai Valley Sportsmen's Association, Bonners Ferry, Idaho -- Priest Lake white-tailed deer ecology.

COORDINATION REPORT

STATEWIDE WILDLIFE RESEARCH

STATE: Idaho **TITLE:** Statewide Wildlife Research
PROJECT NO.: W-160-R-19
SUBPROJECT NO.: 30 **SUBPROJECT:** Region 2 White-tailed Deer Habitat Use
STUDY NO.: I

PERIOD COVERED: July 1, 1991 to June 30, 1992

During 1991-92, we monitored 19 adult and 4 yearling buck white-tailed deer on the South Fork of the Clearwater River study area. Home ranges for 1990-91 averaged 89 ha (S.D. = 56 ha) for the 19 adult and 67 ha (S.D. = 39 ha) for the 4 yearling males. Summer-fall home range estimates varied from 25 ha to 211 ha. Mean elevation of summer-fall home ranges was 1376 m (S.D. = 159 m). Mean distance between consecutive geographic activity centers for 10 adult males was 0.31 km (S.D. = 0.25 km). Mean straightline distance between individual summer-fall and winter ranges was 39.2 km (S.D. = 9.3), range 20.7 - 58.6). On average, deer took 6.9 $\pm$ 3.6 days to reach winter range. Migration route to winter range explained 52% of the variation in migration date ($P < 0.0001$).

Reports:

Baumeister, T., and P. Zager. 1992. White-tailed deer ecology: Region 2 white-tailed deer habitat use. Fed. Aid Wildl. Restor., Proj. W-160-R-19, Subproj. 30. ID Dept. Fish and Game, Boise.

PROGRESS REPORT
STATEWIDE WILDLIFE RESEARCH
RESEARCH COORDINATION REPORT
ELK ECOLOGY

MICHAEL W. GRATSON, WILDLIFE RESEARCH BIOLOGIST

STATE: Idaho **TITLE:** Statewide Wildlife Research
PROJECT NO.: W-160-R-19
SUBPROJECT NO: 31 **SUBPROJECT:** Lochsa Elk Ecology
STUDY NO: I-III

ABSTRACT

Study No. I. Road Closures and Bull Elk Mortality

Job 2: The effect of road closures on elk vulnerability in north-central Idaho.

Bull elk (Cervus elaphus) mortality by hunter harvest in 3 study areas that vary in hunter access is being investigated. In the roaded study area, road densities are moderate to high and roads are open to motorized vehicle access during the general elk hunting season. In the managed access study area, road densities are moderate to high, but roads are closed to motorized vehicle use during the general elk season. In the unroaded study area, road densities are low and roads are open to motorized vehicle use. Of 36 radio-collared bull elk available for harvest during the 1991 archery and general (rifle) elk seasons: none were killed during the archery season; in the general season, 2 of 3 bulls living in the roaded study area were harvested; 6 of 19 bulls (32%) living in the managed access study area were harvested; and 4 of 14 bulls (29%) living in the unroaded study area were harvested. Annual survival rates of bulls since date of capture, based on days known to be alive, were 0.55 [95% confidence intervals (CI), 0.24-1.00] for those living in the roaded study area; 0.65 (CI 0.46-0.92) for those in the managed access study area; and 0.85 (0.72-0.99) for those in the unroaded study area. Sample sizes are too small in this first year of study to make firm conclusions regarding harvest mortality rates in relation to hunter access. Thirty-three additional bulls (27 in roaded area and 7 in managed access area) were radio-collared in 1992 to supplement those surviving the 1991 season and 1991-92 winter.

Job 3: The effect of road closures on hunter density, distribution, and success.

Hunter density, distribution, and hunting success in the 3 study areas are being investigated. The 1991 hunter density, distribution, and success data in the 3 study areas collected via

the 1991 Idaho Big Game Harvest Telephone Survey appear inadequate because the statewide survey was not designed to sample subunits. During the period covered in this report, discussions were held with Regional and Bureau wildlife staff to develop a methodology to obtain the desired data for the 1992-95 hunting seasons. Beginning just after the 1992 hunting season, we will supplement the Statewide Telephone Survey, which will occur much later, with additional telephone contact by Region 1 and 2 personnel of hunters using the Elk Vulnerability study areas. We will concentrate on obtaining the locations of areas used by hunters, time they spent hunting those areas, and time of the season they hunted in those areas.

Study No. II. Optimum Yield of Elk

Job No. 1. The effect of harvest on elk population size and composition in Idaho.

The effects of antlerless elk (Cervus elaphus) harvest rates on population change, sex and age composition, and indices of annual productivity are being investigated on a statewide scale for 11 individual Game Management Units (GMU). This study will provide guidance in choosing harvest rates necessary to achieve desired population goals, as described in the 1991-1995 5-year Elk Plan. During the hunting seasons of 1992-1995, a relatively constant fraction of the population of antlerless elk in each GMU will be harvested using the controlled hunt permit system. The estimated number of adult females in sample GMUs ranges from 469 to 3757; adult female density ranges from 0.24 to 1.06 animals/km^2; and harvest treatment rates range from 2% to 28%. During the period covered in this report, meetings were held with Regional and Bureau wildlife staff to arrive at harvest levels and permits numbers for individual GMUs. Although treatment levels were not assigned to GMUs totally randomly, a number of pre-treatment biases appear to be minimal. There is no significant pre-treatment relation between harvest treatment level and adult cow density (r = 0.16, 10 df, P >0.10) and harvest treatment level and calf:cow ratios (r = -0.19, 10 df, P >0.10). Additional sources of potential bias may be present and will be investigated in the future.

Study No. III. Elk Sightability

Job No. 1. Develop an elk sightability model for the Bell 206 Jet Ranger helicopter.

Model development will begin during the 1992-93 winter. During the period covered in this report, the issues of availability and costs of different helicopter types were raised with Regional and Bureau wildlife staff. Thirty-three additional bull elk were radio-collared in the Clearwater drainage to supplement those surviving 1991. These radio-collared elk will be used to develop the Bell

206 Jet Ranger sightability model. Data collection and analysis will follow Samuel et al. (1987). In brief, Bell 206 helicopter surveys of elk in predetermined geographic areas will be preceded by a fixed-wing flight to locate radio-collared elk. During both fixed-wing and helicopter flights, the number, sex, and age of animals in groups, percentage vegetation cover, percentage snow cover, and animal behavior will be recorded. Upon completion of surveys, radio-collared animals not observed from the Bell 206 will be located and sex, group size, vegetation, snow, and behavior data will be recorded from the helicopter. These data will be analyzed to determine what adjustments are necessary to correct for elk not observed during Bell 206 surveys.

MEETINGS AND PRESENTATIONS

Date	Purpose	Location
Sep	Big Game Regulations meeting	Lewiston
Dec	Antlerless Elk Harvest Study meeting	Lewiston
Feb	North Idaho Research meeting	Coeur d'Alene
	Black Bear public meeting	Grangeville
	Black Bear public meeting	Lewiston
Apr	North Idaho Research meeting	Bonners Ferry
	Region 2 Wildlife Council Meeting	Kamiah
	Idaho Chapter, TWS meeting	Moscow
	WSU Wildlife Class presentation	Fenn Ranger Stn
May	IDFG-USFS-Nez Perce Tribe coord mtg	Myrtle
	ISTS meetings and training	Boise
	Nonenforcement training	Lewiston
	Sexual harassment training	Orofino
Jun	IDFG-USFS elk vulnerability mtg	Lewiston
	IDFG-USFS elk vulnerability meeting	Lewiston

REPORTS, PUBLICATIONS, AND ARTICLES

Gratson, M. W. 1992. Elk ecology study plan 1991-1996. Idaho Dep. Fish and Game. Unpubl. Rep. 37pp.

Gratson, M. W., G. K. Gratson, and A. T. Bergerud. 1991. Male dominance and copulation disruption do not explain variance in male mating success on sharp-tailed grouse (Tympanuchus phasianellus) leks. Behavior 118:187-213.

Gratson, M. W., J. W. Unsworth, and P. Zager. 1992. The effects of road closures on elk vulnerability in north-central Idaho. Fed. Aid in Wildl. Restor., Job Prog. Rep., Proj. W-170-R-22. ID Dept. Fish and Game, Boise. 8pp.

Gratson, M. W., and P. Zager. 1992. The effects of cow elk harvest rates on elk population dynamics in Idaho. Fed. Aid in Wildl. Restor., Job Prog. Rep., Proj. W-170-R-22. ID Dept. Fish and Game, Boise. 12pp.

PROGRESS REPORT
STATEWIDE WILDLIFE RESEARCH
RESEARCH COORDINATION REPORT
ELK ECOLOGY

PETER ZAGER, PRINCIPAL WILDLIFE RESEARCH BIOLOGIST

STATE: Idaho **TITLE:** Statewide Wildlife Research
PROJECT NO.: W-160-R-19
SUBPROJECT NO: 31 **SUBPROJECT:** Lochsa Elk Ecology
STUDY NO: I-III

ABSTRACT

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MEETINGS AND PRESENTATIONS

Date	Purpose	Location
July	Elk hunter survey - U of Montana	Lowell
	CDA elk ecology project - Leptich	CDA
	Dept Wildl Resources coord - U of Idaho	Moscow
	Jarmer thesis defense - U of Idaho	Moscow
	Black Bear Plan meeting - IDFG	Boise
	Immobilization workshop - IDFG	Pullman
	Fisheries personnel meeting - IDFG	Lewiston
August	BOW/R-2 mtg re reorganization-IDFG	Lewiston
	Management Survey interview - IDFG	Lewiston
	Sexual Harassment training - IDFG	Lewiston
	Venture 20 - IDFG	Lewiston
Sept	Selkirk grizzly bear project-USFWS/IDFG	CDA
	Big game regulations meeting - IDFG	Grangeville
	Big game regulations meeting - IDFG	Lewiston
	Enforcement training - IDFG	Lewiston
	Elk hunter survey - U of Montana	Lowell
October	Check station orientation - U of Idaho	Moscow
	Director's presentation - IDFG	Lewiston
November	NWGBE subcmte mtg - USFWS	CDA
	Starkey Exp Forest staff - USFS	LaGrande
	R-2 Wildlife Council mtg - IDFG	Lewiston
	Elk Vulnerability Working Group - USFS	Spokane
December	Black Bear Plan mtg - IDFG	Boise
	Black Bear Task Force mtg - IDFG	Boise
	Elk Vulnerability mtg - MDFWP/USFS	Yellowbay
	Elk hunter survey - U of Montana	CDA
	Edlemann M.S. cmte mtg - U of Idaho	Moscow
	Heekin M.S. cmte mtg - U of Idaho	Moscow
	Elk optimum yield project - IDFG	Lewiston

Date	Purpose	Location
January	White-tailed deer working grp - MDFWP/USFS	Missoula
	Black Bear Plan public mtg	Grangeville
	Black Bear Plan public mtg	Lewiston
	Vulnerability Marketing - U of Idaho	Moscow
	Vulnerability Marketing - U of Idaho	Moscow
February	Black Bear Plan public mtg - UofI/IDFG	Salmon
	Black Bear Plan public mtg - UofI/IDFG	Challis
	Whitetail elk project direction - UofI	Moscow
	N Idaho research biologists mtg - IDFG	CDA
	Pauley and Peek re wtd ms - U of Idaho	Lewiston
	Team Building Workshop	Spokane
	Internat'l Bear Assoc. Conference	Missoula
	Elk Hunter Survey - U of Montana	Missoula
	Priest Lake WTD project - U of Montana	Missoula
March	Vulnerability marketing - U of Idaho	Moscow
	Elk Sightability - U of Idaho/IDFG	Pritchard
	Black Bear Plan - IDFG	Lewiston
	T & E projects - IDFG	CDA
April	N Idaho research group - IDFG	Bonners Ferry
	Mule deer research mtg - neighbor states	Nampa
	Personnel meeting - IDFG	Lewiston
	Hunter education class - IDFG	Lewiston
	WTD pop monitoring mtg - WDW/UW/IDFG	CDA
May	R-1 management/research coord - IDFG	CDA
	ISTS vulnerability presentation - IDFG	Nampa
	Necropsy workshop - WSU	Pullman
	FS/IDFG coordination mtg	Myrtle
June	Elk vulnerability mtg - USFS/IDFG	Lewiston

Presentations

New Employees Tour - elk mortality	Lewiston
Grangeville Muzzleloaders -whitetails	Grangeville
KOZE radio re mountain quail project	Lewiston
Camas Prairie Bowmen - whitetails	Grangeville
ISTS Vulnerability presentation	Boise

REPORTS, PUBLICATIONS, AND ARTICLES

Pauley, G., J.M. Peek, and P. Zager. 1992. Predicting use of mature forest cover by white-tailed deer in winter with snow depth in the Priest Lake area of northern Idaho. submitted to Journal of Wildlife Management.

Compton, B.B., P. Zager, J.R. Skalski. 1992. Selkirk Mountains caribou census technique -- methodology and recommendations. ID Dept. Fish and Game, Boise.

Compton, B.B. P. Zager, and G. Servheen. 1992. Survival and cause-specific mortality of translocated woodland caribou. ms. to be submitted to Wildlife Society Bulletin.

Leptich, D.J., and P. Zager. 1991. Coeur d'Alene elk ecology project. Study I. Bull elk habitat use and habitat security. Fed. Aid Wildl. Restor., Proj W-160-R, Subproj. 23, Jobs 1 & 2. ID Dept. Fish and Game, Boise.

Leptich, D.J., and P. Zager. 1992. Coeur d'Alene elk ecology project. Study II. Elk sightability. Fed. Aid Wildl. Restor., Proj. W-160-R, Subproj. 23. ID Dept. Fish and Game, Boise.

Leptich, D.J., and P. Zager. 1992. Coeur d'Alene elk ecology project. Study I. Bull elk habitat use and habitat security. Fed. Aid Wildl. Restor., Proj W-160-R, Subproj. 23, Jobs 3 & 4. ID Dept. Fish and Game, Boise.

Gratson, M.G., and P. Zager. 1992. Elk ecology project. Study I. The effect of road closures on elk vulnerability in northcentral Idaho. Fed. Aid Wildl. Restor., Proj W-160-R, Subproj. 22, Jobs 2 & 3. ID Dept. Fish and Game, Boise.

Gratson, M.G., and P. Zager. 1992. Elk ecology project. Study II. The effects of cow harvest rates on elk population dynamics in Idaho. Fed. Aid Wildl. Restor., Proj W-160-R, Subproj. 22, Job 1. ID Dept. Fish and Game, Boise.

Heekin, P.E., K.P. Reese, and P. Zager. 1992. Mountain quail: current research in Idaho. Poster presented at Quail III: National Quail Symposium. Kansas City, MO.

Secord, M., P. Zager and S. Winslow. 1992. White-tailed deer ecology: Habitat use by Priest Lake white-tailed deer. Fed. Aid Wildl. Restor., Proj W-160-R, Subproj. 30. ID Dept. Fish and Game, Boise.

Baumeister, T., and P. Zager. 1992. White-tailed deer ecology: Habitat use in Region 2. Fed. Aid Wildl. Restor., Proj W-160-R, Subproj. 28. ID Dept. Fish and Game, Boise.

Wakkinen, W.L., and P. Zager. 1991. Selkirk Mountains grizzly bear ecology project: November 1990 - November 1991. Prog. rept., Threatened & Endangered Species Proj. E-3-6. ID Dept. Fish and Game, Boise.

Compton, B.B., P. Zager, and L. Allen-Johnson. 1991. Selkirk Mountains caribou transplant: June 1990 - May 1991. Prog. rept., Threatened & Endangered Species Proj. E-7-3. ID Dept. Fish and Game, Boise.

COORDINATION REPORT
STATEWIDE WILDLIFE RESEARCH

STATE: Idaho **TITLE:** Statewide Wildlife Research
PROJECT NO.: W-160-R-19
SUBPROJECT NO.: 32 **SUBPROJECT:** Mountain Quail Ecology
STUDY NO.: I
PERIOD COVERED: July 1, 1991 to June 30, 1992

The 1992 field season included searching for populations of mountain quail, trapping and measuring birds, radiotracking, and habitat work. During January and February, over 40 drainages, subdrainages, draws, and associated slopes in the Little Salmon and lower Salmon River canyons were searched for populations of mountain quail. Thirty-three funnel traps were set up and 66 mountain quail were trapped, banded, weighed, and measured. Of those, 42 quail were radio-tagged. The birds' movements were monitored from March through August, physical and vegetal measurements were taken at all nest sites, selected brood sites, random dependent sites associated with used sites, and random independent sites. A total of 66 habitat plots were completed. The availability of given habitats will be compared against the proportion of use they receive. Chi-square goodness of fit, t-tests, linear regression, and nonparametric procedures will be used to analyze the data.

Reports:

Heekin, P., K.P. Reese, and P. Zager. 1991. Mountain quail ecology: study plan. Fed. Aid Wildl. Restor., Proj. W-160-R-19, Subproj. 32. ID Dept. Fish and Game, Boise.

Presentations:

Feb 1992 Movements, habitat use patterns, and population characteristics of mountain quail in west-central Idaho: a pre-project seminar. University of Idaho.

Jul 1992 Mountain quail: current research in Idaho. Poster at Quail III Conference. Kansas City, MO.

Aug 1992 Movements, habitat use patterns, and population characteristics of mountain quail in west-central Idaho. Idaho Rare Animal Workshop. Boise.

Aug 1992 Movements, habitat use patterns, and population characteristics of mountain quail in west-central Idaho. Treasure Valley Chapter of Quail Unlimited. Payette.

Apr 1992 Mountain quail. on "Inside on the Outdoors" radio program, KBOI.

COORDINATION REPORT

STATEWIDE WILDLIFE RESEARCH

STATE: Idaho **TITLE:** Statewide Wildlife Research
PROJECT NO.: W-160-R-19
SUBPROJECT NO.: 33 **SUBPROJECT:** Cottonwood Turkey Ecology
STUDY NO.: I
PERIOD COVERED: July 1, 1991 to June 30, 1992

Though Merriam's wild turkeys were first introduced into Idaho in the early 1960s, information on turkeys in Idaho is minimal. This study will provide quantitative data and analysis of habitat use, reproduction and survival to aid in the management of Merriam's and their habitat. During the 1992 field season, 21 Merriam's wild turkeys were radio-marked and monitored to determine 1) movement patterns and timing, 2) winter habitat use, 3) nest sites, 4) reproductive parameters, 5) brood-rearing habitat use, and 6) survival. Radio-marked turkeys consisted of 4 locally trapped adult hens, 4 introduced adult hens, 6 introduced juvenile hens, and 7 introduced juvenile males. Turkeys were located a total of 252 times throughout the field season. Local hens moved an average of 28.8 km (range 5.25-35.75 km), between the trap site and their nests. Winter habitat use was limited to 8 locations due to prolonged trapping efforts. Twelve nests were located and their habitat characteristics were sampled. These nests also revealed a 92% nesting attempt rate, 50% nest success and a mean clutch of 11 eggs. Hens with broods were located 23 times where brood-rearing habitat characteristics were sampled. Of the 21 turkeys radio-marked, 18 with functioning transmitters remain in the study area. Data is currently being entered or prepared for entry and analysis, primarily with MANOVA, will be completed after the 1993 field season.

Reports:

Edelmann, F., K.P. Reese, and P. Zager. 1991. Cottonwood turkey ecology: study plan. Fed. Aid Wildl. Restor., Proj. W-160-R-19, Subproj. 33. ID Dept. Fish and Game, Boise.

PROGRESS REPORT

STATEWIDE WILDLIFE RESEARCH

RESEARCH COORDINATION REPORT

MULE DEER ECOLOGY

JAMES W. UNSWORTH, PRINCIPAL WILDLIFE RESEARCH BIOLOGIST

STATE: Idaho **JOB TITLE:** Statewide Wildlife Research

PROJECT: W-160-R-19

SUBPROJECT: 35,41,& 42 **STUDY NAME:** Mule Deer Ecology

PERIOD COVERED: July 1, 1991 to June 30, 1992

ABSTRACT

Subproject 35. Mule Deer Ecology

During 1991-92, development of the mule deer study plan was initiated. Study areas were identified. Approximately 100 deer will be radio-collared on 2 study areas and they will be aerially monitored 30-50 times. Mortality will be monitored and about 50 sightability trials will be conducted. Work will be initiated to evaluate harvest estimation methods.

Subproject No. 41. Region 3 Mule Deer Habitat Use.

Inactive.

Subproject No. 42. Region 4 Mule Deer Habitat Use.

Inactive.

Meetings and Presentations

MONTH	MEETING	LOCATION
Jul	Road Closure Project (USFS)	Kamiah
Jul	Fishery Season Setting	Lewiston
Jul	Wildlife 2001 Conference	Oakland, CA
Aug	IDFG Reorganization Meeting	Lewiston

Aug	Sportsmen's Meeting	Kamiah
Aug	Road Closure Project (USFS)	Moscow
Aug	Hunter Distribution Study	Lowell
Sep	Road Closure Project (USFS)	Grangeville
Sep	Non-enforcement Training	Lewiston
Sep	Road Closure Project (USFS)	Kamiah
Nov	Presentation at U. of Idaho	Moscow
Nov	Presentation on Road Closure Project	Orofino
Jan	Safety Committee	Boise
Feb	Presentation on Road Management	Boise
Feb	Presentation on Mule Deer	Boise
Feb	Bombing Range	Boise
Apr	Wildlife Managers Meeting	Boise
Apr	Presentation on Mule Deer	Nampa
May	In-service Training	Boise
May	Presentation on Elk Mortality	Boise

Reports, Publications, Articles: (James W. Unsworth)

Unsworth, J, W. 1991. Elk habitat security characteristics and hunting season mortality rates. Completion Rep., Project W-160-R-14, Study III. Idaho Dept. Fish and Game, Boise.

_____. 1991. Lochsa elk ecology study plan, 1991-1995. Project W-160-R-14. Idaho Dept. Fish and Game, Boise. 27pp.

PROGRESS REPORT
STATEWIDE WILDLIFE RESEARCH

STATE: Idaho
TITLE: Statewide Wildlife Research
SUBPROJECT: Effects of predation on upland nesting game birds
PERIOD COVERED: July 1, 1991 to June 30, 1992

PROJECT NO: W-160-R-19
STUDY: I
JOBS: 1 and 2
SUBPROJECT NO.: 36

ABSTRACT

Study I. Effects of predation on upland nesting game birds

Job 1. Develop a study plan.

A study plan was completed in February 1992 by graduate student Randy Gazda. This study will use habitat mapping, nest searches, brood routes and predator surveys to evaluate predation, nest success, and recruitment of ground nesting birds on Sterling Wildlife Management Area. Comparable data will be recorded on nearby farmland.

Job 2. Implement the study plan.

Little is known about the nesting success of ground nesting birds in much of the intermountain west. The impact of Russian olives that have recently spread throughout the intermountain west on native wildlife is also not well understood. The objective of this study is to understand the relationship of predators and habitats to the nesting success of upland nesting birds. A search of management subunits resulted in 79 active magpie nests being located and mapped. Thus far 179 duck and 38 miscellaneous nests have been located, mapped, and monitored. Preliminary analysis suggest that nest success for ducks is < 10%.

Submitted by:

John Beecham
Assistant Bureau Chief
Federal Aid Coordinator

Approved by:

Tom Reinecker
Chief, Bureau of Wildlife

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