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IDAHO

DEPARTMENT OF FISH AND GAME

Jerry M. Conley, Director

WILDLIFE COORDINATION

July 1, 1989 to June 30, 1990

Project W-168-R-7

Compiled and Edited by: John Beecham and Jodi Turner

September 1990

Boise, Idaho

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PROGRESS REPORT

SURVEYS AND INVENTORY

STATE: Idaho **PROJECT NO.:** W-168-R-7

TITLE: Surveys and Inventory **STUDY:** 1

SUBPROJECT: Wildlife Coordination **JOB:** I

PERIOD COVERED: July 1, 1989 to June 30, 1990

ABSTRACT

During the reporting period, coordination was provided for all wildlife Federal Aid programs. In March of 1989, the incumbents position of Wildlife Research Manager was changed to Assistant Chief of the Bureau of Wildlife. Federal Aid Coordination responsibilities remained with the incumbent. In addition, the incumbent was assigned responsibility for coordinating the 5-year Species Planning effort as well as Acting Chief's duties. Two plans (Upland Game and Furbearer) were completed during this reporting period.

MEETINGS AND PRESENTATIONS

DATE	PURPOSE	LOCATION
7/10/89	Meet with Nez Perce Tribe on Wildlife Mitigation	Lewiston
7/11/89-7/13/89	Northwest Power Plan. Com. Mtg.	Whitefish, MT
7/19/89	Meet w/Dept. Ag. to discuss Veterinarian position	Boise
7/20/89	Met w/Mayor, City Parks, & Albertsons representatives to discuss interpretive program for Kathryn Albertson Park.	Boise
7/26-27/89	July Commission meeting	Sandpoint
8/5-6/89	Boise Zoo-presentation on bears	Boise
8/14/89	Boise City-Albertson's Park	Boise
8/16/89	Idaho Power Co.-MOU for mitigation	Boise
8/22-23/89	Physical Fitness Workshop	Boise
8/24/89	U of I and WSU - Coop. Education Program	Boise

DATE	PURPOSE	LOCATION
8/28/89	Fisheries personnel interviews (PFRB)	Boise
9/22/89	Seattle - interpretive signs for Albertson's Park	Seattle, WA
9/26/89	Valley View School - bears	Boise
10/1/89	Pheasant Workshop	Boise
10/11/89	Caldwell Vet. Teaching Center - Sheep diseases	Caldwell
10/26-11/3/89	FA meeting	Kona, HI
11/7/89	Id. Coop. Fish & Wildlife Research Unit Coordination meeting	Boise
11/14/89	Albertson's Foundation - funding for Wildlife Viewing Guide	Boise
11/17-19/89	Helicopter net-gun training	Boise
12/6/89	December Commission meeting	Boise
1/9/90	U of I: Raptor Research Tech. Assist. Center	Boise
1/18/90	PAC mtg. for Director	Boise
1/23/90	IDFG: Futures meeting	Boise
1/24/90	Dept. Ag: Caldwell facility for disease Research	Boise
2/7/90	Big Creek Sheep Research	McCall
2/21/90	Id. Wild Turkey Chapter meeting	Boise
2/26-3/1/90	National Wild Turkey Fed. meeting	Charleston, SC
3/4-6/90	USFWS/EPA Pheasant Research mtg.	Corvallis, OR
3/7/90	Reg. I/Bur. Wildlife Coord. mtg.	CDA
3/8/90	Reg. II/Bur. Wildlife Coord. mtg.	Lewiston
3/15/90	Region IV/Bur. Wildlife Coord. mtg.	Jerome
3/21/90	Jerome Game Farm inspection	Jerome

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DATE	PURPOSE	LOCATION
4/12/90	Public Com. Board	Boise
4/26/90	IDFG - I & E Bur.: Species Plans	Boise
5/8/90	USFS - Boise National Forest - Turkey Program	Boise
5/10/90	Treasure Valley Bowhunters - Species Plans	Boise
5/15/90	USFS - Threatened, Endangered Species Program	Boise
5/16-17/90	May Commission mtg.	Weiser
5/21/24/90	ISTS	Boise
6/13/90	June Commission mtg.	Boise

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE:	Idaho	**JOB TITLE:**	Statewide Surveys and Inventories
PROJECT:	W-170-R-14		
SUBPROJECT:	1	**STUDY NAME:**	Surveys and Inventories
STUDY:	1-6		
JOB:			

PERIOD COVERED: July 1 1989 to June 30, 1990

During the project year the Wildlife Management Section provided the following project coordination and direction between regional personnel and the state office:

BIG GAME COORDINATION REPORT

1. Compile all wildlife management project documents and submit to P.R. Coordinator for Department and Federal Aid office approval.

2. Collect all data from regions and prepare all wildlife management budgets within approved P.R. study plan limitations. Submit for Department, Commission, Governor, and legislative approval.

3. Collect all draft material, review, edit, and compile all annual wildlife management P.R. reports. Submit for Department and Federal Aid office approval.

4. Take part in a Bureau of Wildlife/Regional coordination meeting with each of the six administrative regions in the state. These meetings were for review of working relations and coordination of field work and administrative requirements on all projects.

5. Take part in a Bureau of Wildlife/Regional personnel meeting with each of the six administrative regions in the state. These meetings are for collecting regional recommendations for annual hunting seasons for mule deer, white-tailed deer, elk, antelope, black bear, and mt. lion. Also coordinate with regions to conduct public meetings in more than 35 communities to get public comment on hunting season recommendations. Present annual hunting season recommendations at a public Commission hearing and subsequently get Commission approval for all seasons.

6. Get written recommendations from all regions and coordinate public comment for moose, bighorn sheep and mt. goat hunting seasons. Present recommendations at a public Commission hearing and subsequently get Commission approval for all seasons.

7. Prepare brochures, in cooperation with Bureau of Information and Education, for publication and distribution to public, of hunting regulations for deer, elk, antelope, black bear, and mt. lion and for moose, bighorn sheep and mt. goat (copies enclosed). There are 375,000 copies of the deer, elk, etc. and 60,000 copies of the moose, bighorn and mt. goat brochure printed and distributed each year.

8. Coordinate with each regional wildlife manager in the six administrative regions and two sub-regions the evaluation of species plan objective and goal accomplishments and compliance.
9. Coordinate all trapping and transplanting with all regional managers. This includes securing environmental assessments from land management agencies (US Forest Service and BLM), developing statewide, annual priority lists for each species, scheduling personnel and equipment for each transplant, and securing helicopter contracts for capture and transplanting animals. Take part in field operations. Secure transplant stock from other states and provinces.

10. Secure helicopter contracts for all field work as requested by each regional wildlife manager and research project (within budget constraints). Compile all flight reports and process all bills for flying from each project.

11. Coordinate aircraft safety for all department flying. Attend OAS (FAA) safety workshops and pass along information to field personnel. Coordinate special flight training school for net gunners and "muggers" prior to net gun operations.

12. Coordinate effort to update species plans for next 5-year period (1991-95). Effort was started in April 1989 and will continue through 1990. Species plan drafts are prepared, Department, public and agency comments solicited and final drafts prepared for Commission consideration. Public version prepared for magazine publication , technical version preapared for technical personnel.

13. Serve as Department contact and information source for pesticide questions/problems. Attended two meetings of the Governor's Human and Animal Health Consorteum to discuss effects on wildlife and fish of spraying wheat to control Russian wheat aphids.

14. Serve as Department representative on Governor's Human and Animal health Consorteum.

15. Serve as Department representative on the Regional Emergency Animal Disease Eradication Organization (READEO).

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16. Continue to serve as Department coordinator for collecting samples and data relative to animal disease problems statewide.

17. Department representative to three meetings of western states wildlife managers and agriculture veterinarians to develop a western states wildlife disease cooperative effort. This was mainly in response to bighorn sheep disease problems in five states.

18. Represented the Department at the Foundation for North American Wild Sheep convention in Reno. An information booth was manned, information was provided and two presentations made to attendees prior to the auction of one bighorn sheep tag.
19. Made 2 presentations to annual meeting of Idaho Chapter of FNAWS.
20. Represented the Department at the Rocky Mt. Elk Foundation annual convention. A booth was manned where information was provided to about 20,000 members of the public.

21. Gave talks to several high school and elementary classes.

22. Coordinated all big game depredation problems with all regions as they occurred. This involves preventative measures, depredation hunts, kill permits, feeding and other efforts. More than $800,000 Fish and Game funds were spent on this effort for prevention and feed. The regions made recommendations and approval is secured from Department administrators. In the case of depredation hunts, drawings for permits are held and permittees notified and tags issued. Special regulations are written for each hunt.

23. A phone survey is conducted from the Headquarters office to determine hunter success for each big game species, data are compiled from about 40,000 calls, a report is written and supplied to each wildlife manager.

24. Coordinate the Laboratory work schedules in conjunction with all regional wildlife managers and research personnel. Samples are sent to the laboratory and analyzed and results are entered on a data system (D-BASE) and returned to each respective field person for their use. An agreement with a private laboratory is being explored to do tooth analysis and the lab will increase work on other biological sample analysis.

25. Supervise principal wildlife research biologists and their projects. Take part in prioritizing, selecting, an designing research projects - this is done in conjunction with all regions and is coordinated by the Bureau of Wildlife management personnel. Take part in each field project to maintain familiarization with ongoing work. Review graduate student projects and reports maintained under supervision of principal researchers.

3 Principal Research Biologists
3 Wildlife Research Biologists
Wildlife Technicians
Bio Aides
Graduate Students

26. Answer all correspondence and inquiries regarding wildlife management, hunting and Department policies and procedures which come to headquarters office. (Several hundred letters and many hundreds of phone call annually).

27. Prepare data and information for department administrators to use at state legislature. Many requests as needed each session. Much coordination with regions to get local , current information in many instances.
28. Attend meetings with local sportsman groups, commodity groups, and special interest as requested. Usually 25-40 per year - i.e. archery assoc., muzzleloaders, houndsmen, cattlemen assn., woolgrowers, wildlife councils, etc.

29. Coordinate with regional wildlife personnel the preparation of agendas and arrangements for two all-biologists meetings each year. Take part in running meeting, scheduling speakers, travel, and facilities. Take part in annual Wildlife Society Chapter meeting. Take part in semi-annual In Service Training School for all Department personnel.

30. Provide data and technical expertise on proposed developments or actions by agencies and private groups or citizens which may affect wildlife or habitat. Coordinate comments with regions to develop one department position.

31. Coordinate comments with regions involved on an individual case basis all requests by people to be licensed to outfit in specific areas. Send Department recommendations to Outfitters and Guides Board. About 50 requests were acted on in 1988-89.

32. Served as an expert witness in state and federal court cases involving Lacey Act and state violations.

33. Prepare an overview and secure statewide public comment special weapons (muzzleloader and archery) and accessories use during special weapons seasons.

34. Prepare a proposal and secure statewide public comment on initiation of a preference point system for controlled hunt applicants for bighorn sheep, moose, and mt. goat.

35. Prepare articles for IDAHO WILDLIFE regarding bighorn sheep transplants.

36. Prepare material for the IDAHO FISH AND GAME NEWS.

37. Served as Chairman of Biannual Northern Wild Sheep and Goat Council Conference.

38. Take part in Department physical fitness program testing twice a year - complete physical once a year for all personnel.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho JOB TITLE: Statewide Wildlife Surveys and Inventories
PROJECT: W-170-R-17
SUBPROJECT: [redacted] STUDY NAME: Game Harvest Survey
JOB: 10
PERIOD COVERED: July 1 1989 to June 30, 1990

Study I

ABSTRACT

Many management criteria in the 1986-90 Species Management Plans are related to hunter harvest and activity. Hunters were contacted on this survey and questioned about their hunting activity and harvest. Over 37,000 hunters were contacted from November 1989 to April 1990.

MEETINGS AND PRESENTATIONS:

Date	Name	Location
January	Commission Meeting	Boise
March	BOW/Region 3 Big Game Recommendations	Boise
March	BOW/Region 4 Big Game Recommendations	Jerome
March	BOW/Region 5 Big Game Recommendations	Pocatello
March	BOW/Region 6 Big Game Recommendations	Idaho Falls
March	BOW/Region 1 Big Game Recommendations	Coeur d'Alene
March	BOW/Region 2 Big Game Recommendations	Lewiston
April	Commission Meeting	Twin Falls
May	Species Plan Meeting	Salmon
May	Depredation Coordinators Meeting	Pocatello
June	Hunter Opinion Survey Meeting	Moscow
June	Species Plan Meeting	Boise

REPORTS:

Nelson, L. J. 1990. Game Harvest Survey Progress Report, Project 2-170-R, Study I.

PROGRESS REPORT

SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-160-R-17

TITLE: Statewide Wildlife Research STUDY: 1

SUBPROJECT: Mule Deer Ecology JOB: 1

PERIOD COVERED: July 1, 1989 to June 30, 1990

ABSTRACT

Seasonal movements of 107 Rocky Mountain mule deer (Odocoileus hemionus hemionus) were studied using radio-telemetry. Deer were trapped on 7 winter ranges and 1 summer range in southeastern Idaho. Migration between summer and winter ranges averaged 19.7 km with no significant difference between 31 bucks and 46 does. Twenty-six percent of the marked deer were not migratory. Deer from one summer range migrated to 6 discrete winter ranges and the overall migration pattern formed a complex web among the winter and summer ranges. Deer showed high fidelity to summer ranges with 100% of the does (n = 27) and 92% of the bucks (n = 12) using the same summer range during each year monitored. Distance between center of activity on the summer ranges in successive years for 27 does averaged 0.5 km and for 11 bucks 1.4 km, $P \leq 0.05$. Fidelity to winter ranges was lower than for summer ranges. Distance between center of activity during successive winters averaged 1.4 km for 38 deer, with no significant difference between bucks (n = 12) and does (n = 26), $P \leq 0.05$. During 2 relatively mild winters, 37% and 12% of marked deer did not use winter range habitat. Migratory patterns of mule deer complicate defining populations, thus creating problems for wildlife managers. An understanding of the complex seasonal ranges involved is important in planning management options and evaluating the results of management actions.

Field work on this job was completed during the year. A manuscript has been prepared and will be submitted for publication. Appendix A is a draft copy.

SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-160-R-17

TITLE: Statewide Wildlife Research STUDY: I

SUBPROJECT: Mule Deer Ecology JOB: 1

PERIOD COVERED: July 1, 1989 to June 30, 1990

ABSTRACT

Job 1. Security characteristics of mule deer ranges.

Seasonal convex polygon home ranges were calculated for 55 does and 47 bucks between 1985 and 1989 for the following seasons: summer, summer/hunt and hunting. Areas used during the summer and summer/hunt seasons were weighted by number of relocations using the following regression:

$$\text{Summer range - Weighted area} = \frac{\text{area}}{0.365 + 0.033\ \text{relocations}}$$

$$\text{Summer/hunt, females - Weighted area} = \frac{\text{area}}{0.382 + 0.024\ \text{relocations}}$$

$$\text{Summer/hunt, males - Weighted area} = \frac{\text{area}}{0.144 + 0.041\ \text{relocations}}$$

Median size of buck summer ranges (n = 59) 461 ha, was 2.74 times the median does summer range (n = 101) 168 ha (P = 0.039). Migratory does had larger summer ranges (n = 78), 190 ha, than non-migratory does (n = 23) 96 ha (P = 0.003). Summer ranges of migratory bucks, 512 ha (n = 35) did not differ from that of non-migratory buck, 320 ha, (n = 24) (P = 0.096). Median summer/hunt ranges of bucks (n = 25), 780 ha, was 2.88 times larger the 271 ha (n = 70) for does ($P < 0.001$). Migratory does used larger, 599 ha, (n - 48) summer/hunt ranges than non-migratory does, 162 ha (n = 22) (P = 0.005). Summer/hunt ranges did not differ for migratory bucks (n = 10) 1037 ha than non-migratory bucks (n = 15) 577 ha (P = 0.405). Size of hunting season ranges used by migratory and non-migratory deer did not differ among does (P = 0.091) or among bucks (P = 0.554). Hunting season ranges were significantly larger in 1988 than in 1987 for does ($P \leq 0.05$). Median buck hunting season ranges (n = 37) 290 ha was 3.3 times the median doe hunting season ranges (n = 86) ha ($P \leq 0.001$).

Job 2. Hunting and habitat security influence on mule deer behavior and mortality.

The 1989 deer harvest in Unit 73 was 5737 deer with 37,824 hunter days, 62% and 80% above 1988. Eighteen bucks and 19 does were monitored through the 1989 season with 11 bucks and 5 does harvested

during the October 18-November 12 season. Antlered deer were legal for 19 days and antlerless deer legal for 26 days and a second tag for antlerless deer only was available. Forty individual deer were relocated a total of 695 times on 25 aerial flights. Unit 73 fall mule deer populations increased from 18,000 in 1985 to 32,600 in 1989. Bucks over 59 deer-seasons, had a lower hunting survival (0.298) than does (0.799) over 102 deer seasons ($P \leq 0.0001$). Annual survival of bucks (0.273) was lower than survival of does (0.691) ($P \leq 0.0001$). Non-hunting mortality for does (0.118) was higher than for bucks (0.038) ($P \leq 0.030$). Daily survival rates of does were correlated with population ($r = 0.839$, $P = 0.076$) and seasonal survival rates were related to population and daily survival rate ($R = 0.971$, $P = 0.057$). Daily survival of bucks was related to buck harvest ($r = 0.943$, $P = 0.057$). Buck season survival and daily survival were related ($r = 0.971$, $P = 0.029$). Harvest was correlated with total population, season structures, hunters, hunter days, and with success. Antlerless deer harvest, by age class was related to the same parameters, all ($P \leq 0.10$). Antlered deer harvest was not significantly related to any of the parameters examined except harvest of adult bucks with hunter days ($r = 0.924$, $P = 0.025$) and with number of hunters ($r = 0.965$, $P = 0.008$). Survival rates were lower on weekend days (0.890) than weekdays (0.976) for bucks ($P \leq 0.0001$) but not significantly different for does ($P \geq 0.136$). Impact of season length (x) on buck survival (y) is predicted ($y = 0.798 - 0.022x$). Survival of bucks aged 29-30 months did not differ from bucks, age 40+ months ($P \geq 0.45$). Teeth were removed for cementum analysis from 354 deer aged as adults among 783 deer checked in 1989.

Job 3. Circadian rhythm of habitat use by mule deer.

The effects of hunting on activity patterns of mule deer (Odocoileus hemionus) were examined in a heavily hunted area of southeastern Idaho. Three male and 3 female mule deer, fitted with motion-sensitive radiotransmitters, were monitored during the fall of 1987 and 1988 to: 1) document activity patterns with respect to hour of day, 2) compare activity patterns between males and females, and 3) compare activity patterns before and during the hunting season. Results indicate that mule deer activity varied significantly by hour of day before and during hunting season. Daily activity followed a bimodal pattern with peaks near sunrise and sunset, decreased levels during daylight hours, and intermediate levels at night. Male and female activity patterns were statistically different during hunting season but not before hunting season. There was no significant difference in mule deer activity before and during hunting season even though mean diurnal and nocturnal activity decreased for both sexes (males: 11.7%, 2.5% and females: 3.0%, 2.0%). In addition, mean diurnal activity of all 3 males steadily decreased preceding the opening of hunting season and was lowest at times when hunting pressure was highest on the study area.

Work on this job has been completed. A Masters thesis has been completed and accepted. Appendix B is a copy.

Meetings and Presentations

Presentations

Brown, Cecil G. 1989. Vulnerability and behavior of mule deer in a heavily hunted southeast Idaho game management unit. Western States Deer Workshop. Aug. 24-25, 1989. Albuquerque, N. Mex.

Brown, Cecil G. 1989. The effects of habitat security on mule deer survival. Joint Meeting, Utah and Idaho Chapters, Society for Range Management. Dec. 7-8, 1989, Pocatello, Idaho.

Brown, Cecil G. 1990. Influence of access on habitat security and vulnerability of mule deer. Interagency Access Management Workshop. Jan. 10, 1990, Pocatello, Idaho.

Brown, Cecil G. 1990. Mule deer research update. Idaho Dept. Fish and Game, Reg. 5, Personel Meeting. March 15, 1990. Pocatello, Idaho.

McDonald, M. J., C. R. Peterson, A. J. Vilale, C. G. Brown, V. A. Cobb, and B. L. Keller. Joint Meeting, Idaho Chapters of The Wildlife Society and American Fisheries Society. Mar. 1-3, 1990. Boise, Idaho.

Meetings

Date	Purpose	Location
July	Reg. 5 Personnel, Fisheries Reg.	Pocatello
July	Summer Wildlife Biologist Meeting	Island Park
August	Western States Deer Workshop	Albuquerque, NM
September	Reg. 5 Training, Firearms	Pocatello
September	Reg. 5 Training, Enforcement	Pocatello
September	Reg. 5 Physical Fitness	Pocatello
November	Reg. 5 Wildlife Coordination Meeting	Pocatello
November	Research Meeting	Boise
December	SRM, Utah and Idaho Chapters	Pocatello
January	Interagency Access Mgmt: USFS, BLM, & IDF&G	Pocatello
March	Reg. 5 Personnel, Big Game	Pocatello
March	Idaho Chapter T.W.S.	Boise
April	Sand Creek Elk Report, BLM & IDF&G	Idaho Falls
May	Reg. 5 Physical Fitness & Training	Pocatello
May	Idaho Fish and Game Inservice Training	Boise
June	Reg. 5 Personnel Meeting	Pocatello

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Reports, Publications, Articles

Brown, C. G., 1989. Mule Deer Population Identification. Prog. Rep., Project W-160-R, Study I. Idaho Department of Fish and Game, Boise.

_____. and M. J. McDonald. 1989. Mule Deer Security. Prog. Rep., Project W-160-R, Study III. Idaho Department of Fish and Game, Boise.

McDonald, M. J. 1990. The activity patterns of mule deer in response to hunting in southeastern Idaho., M.S. Thesis. Idaho State Univ., Pocatello.

PROGRESS REPORT

SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-160-R-17

Title: Statewide Wildlife Research STUDY: I

SUBPROJECT: Bighorn Sheep Ecology JOB: 1-3

PERIOD COVERED: July 1, 1989 to June 30, 1990

ABSTRACT

Job 1. Distribution and Inventory

Aerial surveys were conducted over all known and suspected bighorn sheep ranges in Owyhee County. Increased numbers were observed in all populations compared to the 1987 surveys. The total number of animals observed increased from 600 to 1100. The distribution was recorded for all populations. A total of 208 bighorns was counted on the Little Jacks creek study area. This total included 87 rams, 78 ewes, 39 lambs and four unclassified animals. The ram:ewe lamb ratio was 111:100:50. Rams greater than or equal to 3/4 curl made up 35% of the ram population. Density estimates for the surveyed populations were: Little Jacks creek 4.8/sq. mile, East Fork of the Owyhee river 11.3, Bruneau/Jarbidge 3.0, and Big Jacks creek 0.9.

Job 2. Sightability

Sixty sightability trials were completed. The helicopter crew was successful in locating 33 (55%) of the groups that were under observation of ground personnel. Three helicopter aerial surveys of the Little Jack's Creek study area were conducted during June. 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%.

Job 3. Standardize Survey Techniques

Helicopter and fixed winged airplane disturbance caused radio collared sheep to move long distances (Mean = 4.0 km.). Bighorns commonly moved from the stratification unit before the helicopter arrived. The predictability of estimates of sheep in the stratification units was low (41%). These large scale movements preclude the use of most population estimation techniques. Efforts are being concentrated on developing a sightability model.:

PROGRESS REPORT

SURVEYS AND INVENTORY

STATE: Idaho **PROJECT NO.:** W-160-R-17

Title: Statewide Wildlife Research **STUDY:** II

SUBPROJECT: Bighorn Sheep Ecology **JOB:** 1-3

PERIOD COVERED: July 1, 1989 to June 30, 1990

ABSTRACT

Job 1. Habitat Availability

Preliminary 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. 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 escape 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	State firearms Ins. Training	Ketchum
	Research Proj. Coordination	Boise
	Summer Biologist Mtg.	Island Park
Sep	Pheasant Grad. Student (J.Ball)	Ida. Falls.
	Bighorn Sheep Species Cmtte.	Lewiston
	Hunter Ed. Class	Boise
Oct	Research Proj. Cord. Mtg.	Boise
Nov	State Research Mtg.	Boise
	Pheasant Research Cord. (J.Ball)	Twin Falls
Dec	BLM-IDFG Grazing Mtg.	Boise
Jan	Bighorn Grad.Stu. Mtg.(J.Bissonette)	Boise
	Reg. 3 Physical Fitness	Boise
Mar	W.S. Ida. Chp.	Boise
	RIII Dist. Mtg.	Boise
	RIII - BLM Coord.	Boise
	RIII Pers. Mtg.	Boise
	RIV Pers. Mtg.	Jerome
Apr	Hunt. Saft.	Boise
	Study Coord.	Boise
	CPR Trng.	Boise
	Phys. Ass. & Firearms Trng.	Boise
	Mule Assoc.(net gun tech.)	Eagle
May	Research Coord. Mtg. (BLM)	Boise
	North. Wild Sheep & Goat Mtg.	Clarkston Wa.
Jun	Bighorn Species Cmtt.	Salmon
	I.S.T.S.	Boise

Presentations

Bodie, Walter L. 1989. Bighorn Sheep Ecology and Graduate Student Projects update. Idaho Dept. Fish and Game Research Meeting. Nov. 29-30, 1989. Boise Idaho.

_____ 1989. Bighorn Sheep Ecology research update. B.L.M.-I.D.F.G. Coordination Meeting. Dec. 19, 1989. Boise, Idaho.

_____ 1990. Region 3 research update. Region 3 Personnel Meeting. Mar. 5, 1990. Boise, Idaho.

_____ 1990. Region 4 research update. Region 4 Personnel Meeting. Mar. 15, 1990. Jerome, Idaho.

_____ 1990. Modern Net Gun Capture Techniques. Mule Association Meeting. May 8, 1990. Eagle, Idaho.

_____ 1990. Status and Distribution of California Bighorn Sheep in Idaho. Northern Sheep and Wild Goat Conference. May 15-18, 1990. Clarkston, Washington.

Reports, Publications, Articles

_____ 1990. Status and Distribution of California bighorn Sheep in Idaho. Proc. Northern Wild Sheep and Goat Council 1990: in Press.

Bodie, W.L., E. Taylor, M. McCoy, and D. Toweill. 1989. Bighorn Sheep Ecology. Prog. Rept., Project W-160-R-16, Idaho Department of Fish and Game, Boise.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO: W-160-R-17

TITLE: Statewide Wildlife Research STUDY: I

SUBPROJECT: Sage Grouse Ecology JOB: 1 and 2

PERIOD COVERED: July 1, 1989 to June 30, 1990

ABSTRACT

Study No. 1. 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 have completed the pre-burn phase of a project aimed at assessing the response of sage grouse to a prescribed burn. A total of 262 sage grouse were trapped and marked during spring 1990. Forty-five of these birds (17 percent) were equipped with radios. Females nested from < 1 to > 18 km from the lek on which they were captured (N=10, $\bar{x}$=4.0 km). Nesting success of radio-marked grouse increased from 40 percent in 1989 to 100 percent in 1990. Although sample sizes were relatively small, survival appeared to remain constant or slightly increase over this same period.

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

Sage grouse winter and nesting habitat on the Big Desert was investigated. Nest site data were collected on 13 nests during 1990. Sagebrush (Artemisia spp.) canopy cover at nests ranged from 16 to 22% for 1986 thru 1990. 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.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO: W-160-R-17

TITLE: Statewide Wildlife Research STUDY: II

SUBPROJECT: Sage Grouse Ecology JOB: 1 and 2

PERIOD COVERED: July 1, 1989 to June 30, 1990

ABSTRACT

Study No. 2. An Evaluation of a Sage Grouse Transplant.

Job 1. Movements, survival, productivity and habitat use of transplanted sage grouse.

During 1986 and 1987, the Idaho Department of Fish and Game, in cooperation with the U.S. Forest Service, translocated 196 wild sage grouse into the Sawtooth Valley, Idaho, to augment the declining resident population. Forty-four grouse were equipped with solar powered radio-transmitters to aid monitoring of movements, reproduction, survival, and habitat use. A masters thesis that reports on the results of this research has been completed.

Job 2. Effects of transplanting sage grouse on a resident population of sage grouse.

This job was completed during FY89 and a final report was included in the FY89 Job Progress Report. Monitoring of this population has been turned over to the Salmon Sub-Region.

Meetings and Presentations

Apa, A. D., K. P. Reese and J. W. Connelly. 1990. Seasonal habitat use and movements of sympatric female sage and sharp-tailed grouse in southeastern Idaho. Presented at the annual meeting, Idaho Chapter of The Wildlife Society. March 1-3, Boise.

Connelly, J. W. 1989. Pesticides and pheasants. Presented at the Pheasant Workshop. Sept. 30 - Oct. 1, Boise , ID.

Connelly, J. W. and W. L. Wakkinen. 1989. Sage grouse nest locations: a new look at an old guideline. Presented at the 16th Western States Sage and Sharp-tailed Grouse Workshop. July 19-20, Moses Lake, WA.

Meints, D. R. 1989. Female Columbian sharp-tailed grouse in southeastern Idaho: seasonal habitat use and productivity. Presented at the 16th Western States Sage and Sharp-tailed Grouse Workshop. July 109-20, Moses Lake, WA.

Meints, D. R., K. P. Reese, and J. W. Connelly. 1990. Female sharp-tailed grouse in southeastern Idaho: seasonal movements, habitat use and productivity. Presented at the annual meeting, Idaho Chapter of The Wildlife Society. March 1-3, Boise.

Musil, D. D., K. P. Reese and J. W. Connelly. 1989. Summer habitat use by translocated sage grouse. Presented at the 16th Western States Sage and Sharp-tailed Grouse Workshop. July 19-20, Moses Lake, WA.

Robertson, M. D., K. P. Reese and J. W. Connelly. 1989. Winter movements of a migratory population of sage grouse. Presented at the 16th Western States Sage and Sharp-tailed Grouse Workshop. July 19-20, Moses Lake, WA.

Robertson, M. D., K. P. Reese and J. W. Connelly. 1990. Movements and habitat use of wintering sage grouse in southeastern Idaho. Presented at the annual meeting, Idaho Chapter of The Wildlife Society. March 1-3, Boise.

Wakkinen, W. L. 1989. An improved spotlighting technique for capturing sage grouse. Presented at the 16th Western States Sage and Sharp-tailed Grouse Workshop. July 19-20, Moses Lake, WA.

Publications

Connelly, J. W. 1989. Book review: Adaptive strategies and populations ecology of northern grouse. J. Wildl. Manage. 53:857-858.

Connelly, J. W. and L. M. Doughty. 1989. Sage grouse use of water developments in southeastern Idaho. Proc. Symposium on wildlife water developments. Nevada Dept. Fish and Game. In Press.

Craig, T. H., J. W. Connelly, E. H. Craig, and T. L. Parker. Lead concentrations in golden and bald eagles in Idaho. Wilson Bull. 102:130-133.

Wakkinen, W. L. Improved spotlighting technique for trapping sage grouse. In prep.

Thesis

Musil, D. D. 1989. Movements, survival and habitat use of sage grouse translocated into the Sawtooth Valley, Idaho. M.S. Thesis, Univ. of Idaho, Moscow. 72pp.

Wakkinen, W. L. 1990. Nest site characteristics and spring-summer movements of migratory sage grouse in southeastern Idaho. M.S. Thesis, Univ. of Idaho, Moscow. 57pp.

PROGRESS REPORT

STATEWIDE WILDLIFE RESEARCH

RESEARCH COORDINATION REPORT

LOCHSA ELK ECOLOGY

JAMES W. UNSWORTH, SENIOR WILDLIFE RESEARCH BIOLOGIST

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

PROJECT: W-160-R-17

SUBPROJECT: 22 **STUDY NAME:** Lochsa Elk Ecology

PERIOD COVERED: July 1, 1989 to June 30, 1990

ABSTRACT

Study No. I. Bull Elk Habitat Use.

Habitat use by elk on the Lochsa study area was evaluated using 3834 aerial relocations of radio-collared animals. Cover types were used disproportionately by elk with preferences changing seasonally. Bull elk habitat use differed significantly ($P < 0.05$) from cows during summer, fall, and winter. Use of topography varied seasonally with bulls using ridge tops and upper slopes more than cows during winter and ridge tops and lower slopes during summer ($P < 0.05$). Elk primarily used southerly aspects during winter and northern aspects were used most during fall. Bull elk used steeper slopes than cows during fall ($P = 0.003$) and summer ($P = 0.01$).

Study No. II. Elk Sightability.

Job: 1 Elk Sightability in Timbered Cover Types and for Bull Elk

Inactive.

Job: 2 Evaluation and Implementation

Elk Sightability Model Validation at the National Bison Range, Montana: We estimated the elk population on the National Bison Range (NBR), Montana using aerial surveys corrected with a sightability model. Four surveys were flown during winter and spring 1988. Our estimates compared favorably with an independent ground count conducted by NBR personnel. We estimated 159 ± 11 and 117 ± 26 elk on the first and fourth surveys, respectively. These compare to NBR estimates of 152 and 125 elk for the same dates. Animals were removed from the

population between surveys and we were able to statistically detect a 17% reduction in population size. This paper has been published in Wildlife Society Bulletin 18:113-115.

Elk Sightability Surveys - A Practical Approach: A manual detailing the methodology of conducting sightability surveys was developed. The manual includes sections on safety, survey design, flying methods, and the use of computer software for data analysis. A new version of the data analysis software was developed that is menu driven and includes a text editor.

Study No. III. Elk habitat Security Characteristics and Hunting Season Mortality Rates.

Elk (Cervus elaphus) (N=102) were monitored during the 1986, 1987, 1988, and 1989 hunting seasons to determine habitat use and mortality rates. Habitat components were used disproportionately by elk. Closed timber was used more than in proportion to its availability and open timber and shrubfields were used less than in proportion to their availability during August, September and October. Shrubfields were used in proportion to their availability during November. Fifty-four mortalities occurred during this period: 4 archery wounding losses, 6 rifle wounding losses, 3 poaching losses, 33 recovered rifle kills, 1 recovered archery kill, and 7 other mortalities. Seasonal mortality rates are calculated.

Meetings and Presentations

Date	Name	Location
Jul	Elk Species Plan	Moscow
Jul	IDFG Region 2 Fishery Bureau Meeting	Lewiston
Jul	IDFG Summer Biologist Meeting	Island Park
Jul	Elk Species Plan	Lewiston
Jul	Bison Range Data Analysis	Moscow
Aug	Elk Mortality Presentation	Idaho Falls
Aug	Elk Species Plan	Boise
Sep	IDFG enforcement training	Lewiston
Sep	Elk Species Plan	Boise
Sep	USFS Forest Monitoring	Moscow
Sep	Elk Workshop	Wall Ck.,MT
Oct	Elk Species PLan	Boise
Nov	IDFG Archery Survey	Lewiston
Nov	Elk Species PLan	Lewiston
Nov	Elk Species PLan	Boise
Nov	IDFG Staff Meeting	Lewiston
Nov	OAS Safety Meeting	Boise
Nov	New Employee Presentation	Lewiston
Nov	IDFG Research Meeting	Boise
Dec	USFS Roads Study	Kamiah
Dec	USFS Forest Monitoring	Moscow

Meetings and Presentations cont.

Dec	USFS Forest Monitoring	Orofino
Jan	IDFG Staff Meeting	Lewiston
Jan	USFS Forest Monitoring	Moscow
Jan	Elk Species Plan	Boise
Mar	Elk Study Presentation	Kooskia
Mar	Aerial Census Presentation	Moscow
Mar	IDFG Region 2 - Wildlife Bureau	Lewiston
Mar	USFS Limits of Acceptable Change	Lewiston
Mar	Elk Species Plan	Moscow
Mar	Elk Species Plan	Moscow
Mar	Elk Mortality Presentation RMEF	Boise
Apr	Elk Vulnerability Workshop	Missoula, MT
Apr	IOG Meeting	Moscow
Apr	Elk Mortality Presentation U of I	Moscow
May	Elk Species Plan	Boise
May	IDFG ISTS	Boise
May	IDFG Budgets	Moscow
Jun	IDFG Staff Meeting, Roads Study	Lewiston

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

Unsworth, J. W., J. J. Beecham, and L. R. Irby. 1989. Female black bear habitat use in west-central Idaho. J. Wildl. Manage. 53:668-673.

Unsworth, J. W., L. Kuck, and E. O. Garton. 1990. Elk sightability model validation at the National Bison Range, Montana. Wildl. Soc. Bull. 18:113-115.

Unsworth, J. W. 1989. Bull elk habitat use. Prog. Rep., Project W-160-R-14, Study I. Idaho Dept. Fish and Game, Boise.

_____. 1990. Elk sightability. Prog. Rep., Project W-160-R-14, Study II. Idaho Dept. Fish and Game, Boise.

_____. 1990. Elk habitat security characteristics and hunting season mortality rates. Prog. Rep., Project W-160-R-14, Study III. Idaho Dept. Fish and Game, Boise.

PROGRESS REPORT

STATEWIDE WILDLIFE RESEARCH

SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-160-R-17

TITLE: Statewide Wildlife Research STUDY: I-III

SUBPROJECT: Lochsa Elk Ecology JOB: 1-2

PERIOD COVERED: July 1, 1989 to June 30, 1990

ABSTRACT

Study No. I. Bull elk habitat use.

Habitat use by elk on the Lochsa study area was evaluated using 3834 aerial relocations of radio-collared animals. Cover types were used disproportionately by elk with preferences changing seasonally. Bull elk habitat use differed significantly ($P<0.05$) from cows during summer, fall, and winter. Use of topography varied seasonally with bulls using ridgetops and upper slopes more than cows during winter and ridgetops and lower slopes during summer ($P<0.05$). Elk primarily used southern aspects during winter and northern aspects were used most during fall. Bull elk use steeper slopes than cows during fall ($P=0.03$) and summer ($P=0.01$).

Study No. II. Elk sightability.

Job 1: Elk sightability in timbered cover types and for bull elk.

Inactive.

Job 2: Evaluation and implementation.

Elk sightability model validation at the National Bison Range, Montana: We estimated the elk population on the National Bison Range (NBR), Montana using aerial surveys corrected with a sightability model. Four surveys were flown during winter and spring 1988. Our estimates compared favorably with an independent ground count conducted by NBR personnel. We estimated 159 ± 11 and 117 ± 26 elk on the first and fourth surveys, respectively. These compare to NBR estimates of 152 and 125 elk for the same dates. Animals were removed from the population between surveys and we were able to statistically detect a 17% reduction in population size. This paper was published in the Wildlife Society Bulletin 18:113-115.

Elk sightability surveys - a practical approach: A manual detailing the methodology of conducting sightability surveys was developed. The manual includes sections on safety, survey design, flying methods, and use of computer software for data analysis. A new version of the data analysis software was developed that is menu driven and includes a text editor.

Study No. III. Habitat security characteristics and hunting season mortality rates.

Elk were monitored during 1986-89 hunting seasons to determine habitat use and mortality rates. Habitat components were used disproportionately by elk. Closed timber was used more than in proportion to its availability and open timber and shrubfields were used less than in proportion to their availability during August, September, and October. Shrubfields were used in proportion to their availability during November. Fifty-four mortalities occurred during this period: 4 archery wounding losses, 6 rifle wounding losses, 3 poaching losses, 33 recovered rifle kills, 1 recovered archery kill, and 7 other mortalities. Seasonal mortality rates were calculated.

Meetings and Presentations

Date	Purpose	Location
Jul	UMT (Murray) - elk hunter survey	Missoula
	USFS (Mumma et al.) - elk vulnerability	Missoula
	UBC (Wielgus) - grizzly bear project	Nelson, B.C.
	IDFG summer biologists meeting	Island Park
	IDFG Bear Plan meeting	Boise
	IDFG fisheries personnel meeting	Cd'A
	IDFG Bear Plan committee meeting	McCall
	IDFG Comm. Hanson - grizzly bear project	Bayview
Aug	USFS (Bright et al.) - CDA elk project	Cd'A

	IDFG Bear Plan committee meeting	McCall
	IDFG grizzly bear/I&E meeting	Cd'A
Sep	UMT (Yuan) - elk hunter survey	Kamiah
	USFS (Blair) - Cost Share Agreements	Grangeville
	IDFG, WDW, MDFWP - Bear Plan meeting	Cd'A
	IDFG Species Plan writers	Boise
Oct	IDFG Comm. Carlson - WTD research	Lewiston
	RMEF - project possibilities	Missoula
Nov	UI (Machlis) - archery hunter survey	Moscow
	Eldon Cutlip, Harpster, - WTD project	Harpster
	Denis Long, Grangeville, WTD project	Grangeville
	Supervisory Skills workshop	Spokane
	IDFG Bear Plan committee meeting	McCall
	IDFG Region 2/Director meeting	Lewiston
	IDFG Region 1 and 2 research personnel	Moscow
	IDFG New Employees Tour - WTD rsch	Lewiston
	IDFG R-1 & R-2 access mgmt program	Lewiston
	IDFG White-tailed Deer Species Plan mtg	Lewiston
	IDFG Research Section meeting	Boise
	USFS (Blair et al.) - WTD research	Grangeville
	BLM (Johnson) - IDFG re research program	Cottonwood
Dec	USFS - Clearwater NF Plan monitoring	Moscow
	USFS (Harrington) - Cd'A elk project	Cd'A
	IDFG RWMs - Species Plans	Boise
	USFWS IMCTC meeting	Cd'A
Jan	IDFG (Henderson) - WTD & elk projects	Lewiston

	RMEF (Burnett) - Idaho's elk rsch	Lewiston
Feb	Marketing Natural Resources workshop	Boise
	IDFG Drug Coordinators Workshop	Boise
	UMT (Pletscher) - white-tailed rsch	Missoula
Mar	UI (Peek) - Pauley's thesis defense	Moscow
	USFS (Collotzi et al.) - WTD rsch	Priest Lake
Apr	USFS et al. - elk vulnerability	Missoula
	IDFG Big Game Regulations mtg	Grangeville
	IDFG R-1 & BOW - grizzly bear project	Lewiston
	USFWS Interagency Grizzly Bear Rsch Subcmte	Bonners Ferry
	BLM (Johnson) - mountain quail project	Riggins
	WDW & IDFG - grizzly bear project	Spokane
Apr	Chukar Foundation - mountain quail rsch	Riggins
	Arnie Schaide - fund raising	Moscow
	UMT (Yuan) - elk hunter survey	Missoula
May	UMT (Pletscher) - WTD research	Cd'A
	Supervisory Skills workshop	Spokane
	West. States and Provinces Elk Wkshp	Eureka, CA
	IDFG (Robertson) - mountain quail survey	Lewiston
	IDFG In Service Training School	Boise
Jun	IDFG R-2 - Lochsa elk project direction	Lewiston
	IDFG Bear & Cougar Plan meeting	Boise
	USFS UMT et al. - elk hunter survey	Missoula
	USFS (Davis et al.) - Lochsa elk rsch	Lewiston

III. Reports and Publications

Zager, P. 1990. Social aspects of wildlife managment in Idaho. Human Dimensions in Wildl. Newsl. 9:9-11.

_____. 1989. White-tailed deer ecology. Job Prog. Rep., Proj. W-160-R-15. Idaho Dep. Fish and Game, Boise.

_____., and L. Kuck. 1989. Coeur d'Alene elk ecology project. Job Prog. Rep., Proj. W-160-R, Study I, II, III. Idaho Dep. Fish and Game, Boise.

Naylor, K.S., J.M. Peek, and P. Zager. 1990. Perspective on management of isolated mountain goat populations with high nonconsumptive values: the Pend Oreille Lake, Idaho, case study. N. Amer. Sheep and Goat Conf. (in press.)

Reviewed 2 manuscripts for the Journal of Wildlife Management, 1 for the International Association for Bear Research and Management.

PROGRESS REPORT

SURVEYS AND INVENTORY

STATE: Idaho **PROJECT NO.:** W-160-R-17

TITLE: Statewide Wildlife Research **STUDY:** III

SUBPROJECT: Coeur d'Alene elk ecology **JOB:** 1-4

PERIOD COVERED: July 1, 1989 to June 30, 1990

Abstract

Study 1. Bull elk habitat use.

I am currently monitoring 49 radio-collared elk (21 bulls, 28 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.

Ground truthing of habitat component maps created in 1988-1989 is continuing and should be completed this year. The project has been expanded through outside funding sources to include a more detailed study of elk habitat use by examining the structure and composition of vegetation at elk use sites. Elk habitat use will be evaluated on a seasonal basis utilizing a multivariate approach. The study plan for this work is currently under development and will be completed by September 1990.

Securing GIS capability for the CDA elk project remains an important step for allowing this study to realize its full potential. I am continuing to seek outside funding for GIS. The USFS has indicated that they may be able to provide at least partial funding for digitizing the study area.

Study 2. Elk sightability.

Field work for this project was initiated in January of 1990. Fifty of the 151 sightability subunits in Unit 4 were sampled. This included 5 (100%) high elk density, 9 (75%) moderate elk density, and 36 (27%) low elk density subunits. Thirty-four percent of the subunits sampled were incorrectly classified with regard to survey strata membership. This resulted in inflated population and variance estimates. The current model produced a Unit 4 population estimate of 4762 elk with a 90% C.I. of $\pm$ 891 animals or 18.7% of the point estimate. Nineteen new sightability model data points were obtained.

Study 3. Habitat security characteristics and hunting season mortality rates.

An elk hunter survey was initiated in cooperation with the University of Montana to assess hunting pressure in Unit 4. The survey was distributed to 1051 Unit 4 elk hunters during the 1989 hunting season. Six hundred sixty-two surveys were returned for a 63% response rate. Analysis is ongoing but preliminary results indicate that calling was the most effective hunting strategy and road hunting the least effective hunting strategy.

No elk were killed during either the archery or muzzle loader seasons. Fourteen elk were killed during the general rifle season. Eleven of the elk were legal kills recovered by sportsmen and turned in to Department personnel. One collar was cut off and left in the field and assumed to be a legal kill. Two elk were unrecovered wounding losses.

Overall Unit 4 mortality rates for 1988 and 1989 combined were 0.50 for bulls and 0.16 for cows. Survival rates among road access treatment areas showed a trend towards increasing survival with decreasing open road densities but sample sizes are still too small for statistically valid comparisons.

Study 4. Mandatory check data analysis.

Project completed in 1989. Inactive for this reporting period.

Meetings and Presentations

Date	Purpose	Location
Aug.	USFS Fernan road closures	CDA
Aug.	Physical fitness instructor workshop	Boise
Aug.	Will discuss fur plan	Boise
Sept.	IDFG-USFS Annual coordination meeting	Priest Lk.
Sept.	USFS Fernan road closures	CDA
Sept.	IFI industry and the CDA elk project	CDA
Sept.	USFS Fernan road closures	Unit 4
Sept.	USFS Joint press release	CDA
Oct.	IPNF challenge grant options	CDA
Nov.	OAS basic helicopter safety training	Boise
Nov.	Net gun use certification training	Boise
Nov.	Zager, Unsworth discuss Sure-Track proposal	Lewiston
Nov.	Will discuss fur plan	Boise
Nov.	Zager et al. N. Idaho wildlife research	Moscow
Nov.	Nichols et al. new 'roads' slide program	Lewiston
Nov.	Annual wildlife research section meeting	Boise
Dec.	IPNF coordination of data needs	CDA
Jan.	IPNF forest plan monitoring & CDA elk study	CDA
Jan.	Hunter animal immobilization training	CDA
Feb.	Regional drug coordinators meeting	Boise
March	USFS assist with elk survey	CDA
March	Spokesman Review CDA elk project 'show me'	Unit 4
March	USFS, BLM cooperative funding of wildl. tech.	CDA
April	USFS hosted elk terminology workshop	Lubrecht MT
April	UM Idaho elk hunter survey	Missoula MT
April	Will discuss fur plan	Boise
May	International Varmint Association Banquet	CDA
May	USFS Fernan road closures	CDA
May	Western states and provinces elk workshop	Eureka CA
May	Zager, Unsworth discuss budgets	Moscow
May	In service training school	Boise
July	USFS Fernan road closures	Unit 4
July	UW elk sightability methodology	CDA
July	IDFG commission meeting	Wallace

Presentations

Leptich, David J. 1989. The Coeur d' Alene elk ecology project--An overview. Annual IDFG Region 1 and USFS IPNF coordination meeting. Sept. 13 1989. Priest Lk., Idaho

Leptich, David J. 1990. The Coeur d' Alene elk ecology project--An overview. Kootenai Environmental Alliance March meeting. March 29 1990. Coeur d' Alene, Idaho.

Leptich, David J. 1990. Bringing Back the Birds. 1st Annual International Varmint Association Banquet. May 5 1990. Coeur d' Alene, Idaho.

Reports, Publications, Articles

Leptich, D.J., and P. Zager. 1990. Elk habitat security characteristics and hunting season mortality rates. Prog. Rep., Project W-160-R, Study III. Idaho Department of Fish and Game, Boise.

Leptich, D.J., and P. Zager. 1990. Elk Sightability. Prog. Rep., Project W-160-R, Study II. Idaho Department of Fish and Game, Boise.

Leptich, D.J., and G.C. Will. 1990. Furbearers 1991-1995 Idaho Department of Fish and Game species management plan. Idaho Department of Fish and Game, Boise.

PROGRESS REPORT

STATEWIDE WILDLIFE RESEARCH

SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-160-R-17

TITLE: Statewide Wildlife Research STUDY: I

SUBPROJECT: White-tailed Deer Ecology JOB: 1 and 2

PERIOD COVERED: July 1, 1989 to June 30, 1990

ABSTRACT

This phase of the Priest Lake white-tailed deer research was completed. The graduate student, George Pauley successfully completed and defended his thesis. Some of these data will be submitted for publication in appropriate outlets.

Meetings and Presentations

Date	Purpose	Location
Nov	Region 1 and 2 research personnel mtg	Moscow
Mar	UI thesis defense	Moscow
	IDFG Region 1 personnel meeting	Cd'A
	IDFG Region 2 personnel meeting	Lewiston
	ID Chapter of The Wildlife Society	Boise

III. Reports and Publications

Pauley, G.R. 1990. Habitat use, food habits, home ranges, and seasonal migration of white-tailed deer in the Priest River drainage, north Idaho. M.S. Thesis, Moscow. 153pp.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-160-R-17
TITLE: Statewide Wildlife Research STUDY: I
SUBPROJECT: Elk Double Sample Survey JOB: 1

PERIOD COVERED: July 1, 1989 to June 30, 1990

ABSTRACT

Study No. 1 Elk Double Sample Survey

The student has completed all field work and has spent the past reporting period attending classes and completing hiser thesis. The completion report is due on 9/1/90.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-160-R-17
TITLE: Statewide Wildlife Research STUDY: I
SUBPROJECT: Pheasant Depredation Study JOB: 1

PERIOD COVERED: July 1, 1989 to June 30, 1990

ABSTRACT

Study No. 1 Pheasant Depredation Study

The student has completed all field work and has spent the past reporting period attending classes and completing his thesis. The completion report is due on 9/1/90.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho
TITLE: Statewide Wildlife Research
SUBPROJECT: Southwestern Idaho Pheasant Ecology

PROJECT NO.: W-160-R-17
STUDY: I
JOB: 1

PERIOD COVERED: July 1, 1989 to June 30, 1990

ABSTRACT

Job 1. Study Plan Development

The student has completed the study plan and it has been implemented.

Job 2. Pheasant Recruitment and Survival

A recruitment study of a ring-necked pheasant population in Canyon County, Idaho was initiated in February 1990. Forty 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 1.13 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.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-160-R-17
TITLE: Statewide Wildlife Research STUDY: I
SUBPROJECT: Southcentral Idaho Pheasant Ecology JOB: 1 and 2

PERIOD COVERED: July 1, 1989 to June 30, 1990

ABSTRACT

Job 1. Study Plan Development

The student has completed the study plan and it has been implemented.

Job 2. Pheasant Recruitment and Survival

A recruitment study of a ring-necked pheasant population in Gooding County, Idaho was initiated in February 1990. Forty radio collared hens were followed through spring dispersal, nesting and brood-rearing periods. Twenty-two were local hens and 18 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 .417. 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 61%. A recruitment model indicated an increase of 6% in the population.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-160-R-17
TITLE: Statewide Wildlife Research STUDY: I
SUBPROJECT: Cottonwood Bighorn Sheep Ecology JOB: 1
PERIOD COVERED: July 1, 1989 to June 30, 1990

ABSTRACT

Study No. 1 Cottonwood bighorn sheep ecology

The student has completed all field work and has spent the past reporting period attending classes and completing her thesis. The completion report is due on 9/1/90.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO: W-160-R-17

TITLE: Statewide Wildlife Research STUDY: I

SUBPROJECT: Effects of the Conservation Reserve Program on Wildlife JOB: 1

PERIOD COVERED: July 1, 1989 to June 30, 1990

ABSTRACT

All data collections have been completed. Although statistical procedures have not been completed, inspection of the data indicates that mule deer (Odocoileus hemionus) and sharp-tailed grouse (Tympanuchus phasianellus) select Conservation Reserve Program (CRP) over agricultural fields in winter. There is little evidence to support the hypothesis that upland game birds select CRP fields for nesting or brood rearing. The nest search method used in this study may not have been appropriate because of the low density of upland game birds in the study area.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO: W-160-R-17

TITLE: Statewide Wildlife Research STUDY: I

SUBPROJECT: Columbian Sharp-Tailed Grouse JOB: 1

PERIOD COVERED: July 1, 1989 to June 30, 1990

ABSTRACT

The seasonal movements, habitats and nesting ecology of Columbian sharp-tailed grouse (Tympanuchus phasianellus columbianus) were examined on two different Wildlife Management Areas (WMA's). These WMA's contained several different habitat types.

Three radioed grouse from the spring trapping period of 1988 survived through February of 1989. Grouse were again trapped and marked on both study areas between mid-March and early May 1989. Over the two years of the study, total of 52 birds (32 females, 20 males) were captured and equipped with radios. Fifty-three percent (N=32) of the females followed through the breeding season were successful nesters. This includes renesting attempts. The mean distance from trap site to nest site (N=16) was 1.2 km for initial nest attempts and 3.6 km for renesting attempts. Vegetation data were collected on 23 nests and compared to 23 dependent and 116 independent random sites. Grass height was significantly greater ($P \geq 0.05$) at successful nest sites compared to unsuccessful sites.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO: W-160-R-17

TITLE: Statewide Wildlife Research STUDY: I

SUBPROJECT: Bighorn Sheep Research JOB: 1

PERIOD COVERED: July 1, 1989 to June 30, 1990

ABSTRACT

A study to establish baseline values for factors which may affect or lead to die-offs of a bighorn sheep (Ovis canadensis) population in east-central Idaho was initiated during winter 1988-89. Fourteen sheep were equipped with radios and an additional 6 sheep were radio-marked in the winter of 1989-90. Their movements were monitored from January through June when movements to summer range began. The average distance moved from winter to summer range for rams and ewes was 19.8 km and 29.5 km, respectively. Six major plant communities occurred on the sheep's winter range. Vegetation canopy coverage, shrub density and production, and grass production were estimated in each community type. These data are now being analyzed.

Submitted by:

John Beecham
Wildlife Research Manager
Federal Aid Coordinator

Approved by:

IDAHO DEPARTMENT OF FISH AND GAME

Jerry M. Conley, Director

Tom Reinecker, Chief
Bureau of Wildlife