

V41I#8

IDAHO
DEPARTMENT OF FISH AND GAME
Jerry M. Conley, Director

WILDLIFE COORDINATION

July 1, 1988 to June 30, 1989

Project W-168-R-1



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September 1989

Boise, Idaho

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PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-168-R-6
TITLE: Surveys and Inventory STUDY: 1
SUBPROJECT: Wildlife Coordination JOB: I
PERIOD COVERED: July 1, 1988 to June 30, 1989

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.

MEETINGS AND PRESENTATIONS

Date	Purpose	Location
7/11/89	U of I Regarding Need for an Extension Agent in Idaho	Boise
7/12/89	CBFWA WC Meeting	Boise
7/22/89	IP Co Mitigation Meeting	Boise
7/25/89	Sheep Research Meeting	Stanley
7/26-27/89	Physical Fitness Workshop	Boise
8/1-2/89	BLM Birds of Prey Research Meeting	Boise
8/4/89	USFWS Sec 6 Meeting	Boise
9/7/89	IP Co 1000 Spgr Mitigation Meeting	Hagerman
9/12-16/89	Physical Fitness Inst Training	Boise
9/20/89	Hunter Opinion Survey Meeting	Boise
10/10-13/89	FA Coord Meeting	Coeur d'Alene
10/24-27/89	FA Chiefs Meeting	Denver
11/2/89	ID Coop Unit Coord Meeting	Moscow
11/3/89	IGBC Research Subcommittee Meeting	Missoula
11/19-20/89	ID Wildlife Congress	Boise
11/21/89	Public Communication Board	Boise
12/6/89	RMEF PAC Meeting	Boise
12/16/89	Sheep Research Meeting BLM	Boise
1/11/90	Dept of Ag regarding Vet Position	Boise
1/16/90	BOW Reg 3 Coord Meeting	Boise
1/19/90	BOW Reg 2 Coord Meeting	Lewiston
1/24/90	BOW Reg 6 Coord Meeting	Idaho Falls
1/25/90	BOW Reg 5 Coord Meeting	Pocatello
1/26/90	BOW Reg 4 Coord Meeting	Jerome
2/6/90	Bureau of Fisheries regarding IP Co Power Project	Boise
2/7/90	IP Co Mitigation Meeting	Boise
2/8-9/90	Field Op Meetings	Boise
2/13/90	NPPC Members Meeting	Boise
2/18-19/90	Project Wild Presentation	Lowell ID
2/21-22/90	Winter Biologist Meeting	Boise
2/27/90	Pheasant Meeting	Jerome
2/28/90	IP Co Mitigation Meeting	Boise
3/15/90	CBFWA Mitigation Meeting	Spokane WA
3/22/90	IP Co Mitigation Meeting	Boise
4/12/90	Public Communication Board	Boise
4/13/90	CBFWA Mitigation Meeting	Boise
4/20/90	CBFWA Mitigation Meeting	Spokane WA
4/24/90	NPPC Mitigation Meeting	Boise
5/1-4/90	Federal Aid Chiefs Meeting	Freeport ME
5/11/90	Federal Aid Update	Portland OR
5/25/90	Liberty School Bear Presentation	Boise
6/14/90	Dept of Ag Vet Position	Boise
6/29/90	IP Co Mitigation Meeting	Boise

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho JOB TITLE: Statewide Surveys and
PROJECT: W-170-R-13 Inventories
SUBPROJECT: 1 STUDY NAME: Surveys and Inventories
STUDY: 1-6
JOB: _____
PERIOD COVERED: July 1 1988 to June 30, 1989

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

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 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 350,000 copies of the deer, elk, etc. and 50,000 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.
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 (schedule enclosed).
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. Attended a workshop in Kansas City at the MOBAY Chemical Co. regarding the effect of Di-Syston spray on wildlife as it relates to Russian wheat aphid control.
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).
16. Coordinated effort with regions to determine extent and severity of a disease outbreak in bighorn sheep December 1988-July 1989. Served as liaison with Department of Agriculture Veterinarians and Department spokesman to news media.

17. Was Department representative to two 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 - regional personnel assisted in a display booth at this meeting.
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. Had 15-20 television interviews regarding effects of forest fires on wildlife and habitat and bighorn disease.
22. Served as Department Coordinator with US Forest Service, Bureau of Land management and Boise Interagency Fire Center during extensive fires (45 fires burned over 450,000 acres) during the fall of 1988. Provided daily updates to department administrators and regional offices on extent of fires and local restrictions every day for over one month. Coordinated recommendation for effect on hunting seasons with regions as fires changed on a daily basis.
23. 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.
24. 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 (1988 copy enclosed).
25. 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.

26. Supervise principal wildlife research biologists and their projects. Take part in prioritizing, selecting, and 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

27. 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).

28. 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.

29. Attend meetings with local sportsman groups, commodity groups, and special interest as requested. Usually 10-20 per year - i.e. archery assoc., muzzleloaders, houndsmen, cattlemen assn, woolgrowers, wildlife councils, etc.

30. 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.

31. 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.

32. 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.

33. Served as an expert witness in four federal court cases involving 10 Lacey Act violations during the fall and winter of 1988.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho JOB TITLE: Statewide Wildlife Surveys
PROJECT: W-170-R-16/3 and Inventories
SUBPROJECT: 7 STUDY NAME: Game Harvest Survey
JOB: 10
PERIOD COVERED: July 1 1988 to June 30, 1989

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 1988 to April 1989.

MEETINGS AND PRESENTATIONS:

<u>Date</u>	<u>Name</u>	<u>Location</u>
September	Hunter Opinion Survey	Boise
November	Wildlife Congress	Boise
January	BOW/Region 1 Coordinators Meeting	Coeur d'Alene
January	BOW/Region 2 Coordinators Meeting	Lewiston
January	BOW/Region 3 Coordinators Meeting	Boise
January	BOW/Region 4 Coordinators Meeting	Jerome
January	BOW/Region 5 Coordinators Meeting	Pocatello
January	BOW/Region 6 Coordinators Meeting	Idaho Falls
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
April	BOW/Region 1 Big Game Recommendations	Coeur d'Alene
April	BOW/Region 2 Big Game Recommendations	Lewiston
April	Commission Meeting	Moscow
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. 1989. Game Harvest Survey Progress Report, Project 2-170-R, Study I.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-160-R-16
TITLE: Statewide Wildlife Research STUDY: I
SUBPROJECT: Mule Deer Ecology JOB: 1
PERIOD COVERED: July 1, 1988 to June 30, 1989

ABSTRACT

Twenty-two mule deer were captured in February 1989, using a net gun from a Bell 206B helicopter. Satellite transmitters were recovered from 3 of the deer, one of which was replaced with a standard VHF transmitter. Three deer from the Samaria and 16 deer from the Hansel Mountain winter ranges were radio collared. As of June 30, 1989 19 bucks and 20 does were being monitored. These included 20 deer from 1988 and 19 new deer. A total of 981 relocations were obtained from 66 individual deer on 27 dates. Summer-fall range size varied between 20 and 5313 ha. Median range size for 21 bucks was 605 ha (95% CI = 270-944 ha) and 24 does was 240.5 ha (95% CI = 161-355 ha). Summer-fall range size has not differed significantly among years, 1985-1988, for either bucks or does. Distance between summer and winter ranges varied from < 1 to 58 km. Bucks moved an average of 1.45 ± 0.31 km between relocations while does averaged 0.81 ± 0.12 km between relocations on the summer range. Data from the satellite transmitters was acquired through November 1988.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-160-R-16
TITLE: Statewide Wildlife Research STUDY: III
SUBPROJECT: Mule Deer Ecology JOB: 1-3
PERIOD COVERED: July 1, 1988 to June 30, 1989

ABSTRACT

Job 1. Security characteristics of mule deer ranges.

Summer-fall, prehunt, home range size for 24 does had a median of 110.5 ha (CI=78-166 ha) which was significantly smaller ($P = 0.05$) than the 297 ha (CI=122-559 ha) area used by 21 bucks. There was no significant difference in prehunt ranges by habitat security levels ($P = 0.05$). Hunting season ranges were documented during 11 flights with 5-11 relocations used to determine 32 hunting season ranges, 20 does and 12 bucks. Median size of hunting season ranges used by the 12 bucks was 693 ha (CI=200-1102 ha) and was significantly larger ($P = 0.05$) than that used by the 20 does (206 ha, CI=117-305 ha). Hunting season ranges were significantly larger ($P = 0.05$) than preseason ranges. Distances between summer-fall activity centers and hunting season activity centers were not significantly different ($P = 0.05$) between bucks (5.5 ± 3.3 km, $n = 10$) and does (4.5 ± 3.8 km, $n = 23$). Distance moved between summer and hunting season habitat by deer using secure habitat (1.6 ± 0.8 km, $n = 23$) was significantly less ($P = 0.05$) than that moved by deer using low security summer ranges (9.2 ± 5.3 km, $n = 18$).

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

Interviews were conducted with 1165 hunters by regional personnel. 1988 harvest was reported as 3,539 deer and 20,987 hunter days. Twenty-one bucks and 23 does were monitored during the 1988 hunting season, which included 19 days of either sex hunting and 7 days of antlerless only hunting. Five does and 14 bucks were killed. Bucks using secure habitats survived 13.0 ± 3.0 days of hunting while those using low security habitats survived 7.0 ± 4.0 days of hunting. Does using secure habitats survived 25.1 ± 1.5 days hunting and those using low security habitats survived 19.7 ± 7.5 days hunting. Deer using low security habitats moved 2.10 ± 0.75 km between relocations during the season and a median of 15.1 km between location immediately preseason and immediately postseason. Deer using secure habitats moved 0.92 ± 0.16 km between relocations during the season and 1.35 km between

locations immediately preseason and immediately postseason, these differences were significant, $P = 0.05$. Teeth were removed from 293 adult deer for ageing and 1,382 deer harvested in Unit 73 were aged to fawn, yearling and adult.

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

During the fall 1988, daily activity patterns of radio-collared mule deer were documented in southeastern Idaho using two types of automatic recording systems, a data logger and strip-chart recorder. From 28 September to 3 December, approximately 3,500 hourly samples were collected on 15 deer (7 females and 8 males). Additional activity data were gathered on 5 wintering deer (2 females and 3 males). Analysis of the data is in progress. A detailed description of both recording systems is provided.

Meetings and Presentations

Date	Purpose	Location
Aug.	Reg. 5 Training - Enforcement	Pocatello
Sept.	Reg. 5 Training - Firearms	Pocatello
Sept.	Reg. 5 Physical Fitness and work plans	Pocatello
Oct.	ISU, Dr. Keller and McDonalds Committee	Pocatello
Dec.	Reg. 5 Staff - MD Project Planning	Pocatello
Dec.	INEL, BLM, IF&G - Desert Elk Study	Pocatello
Jan.	Reg. 6 - Wildlife Bureau Coordination Meeting	Idaho Falls
Jan.	Reg. 5 - Wildlife Bureau Coordination Meeting	Pocatello
Feb.	IF&G Annual Wildlife Biologist Meeting	Boise
Feb.	Idaho Chapter, Wildlife Society	Boise
March	GIS - Conference and workshop	Boise
March	IDWR - GIS	Boise
March	Reg. 5 - Big Game Recommendations	Pocatello
March	Hayden and Lockman, M. Deer Mgmt. Approach	Afton, Wy.
March	Reg. 5 - Bur. of Admin., Coordinationf Meeting	Pocatello
March	BLM/Reg.4/Reg. 5 Coordination Meeting	Burley
April	Reg. 5 Personnel Meeting-Big Game Regulations	Pocatello
April	USU-GIS	Logan, UT
April	Wildlife Society, N.W. Section	Banff, Alb.
May	Red Cross-CPR, 1st Aid Training	Pocatello
May	Reg. 5 Training - Firearms	Pocatello
May	Reg. 5 Training - Physical Fitness & Work Plans	Pocatello
May	Mule Deer Committee	Jerome
June	Reg. 5-USFS Field Tour	Malad

Meetings and Presentations

Presentations

- Brown, Cecil G. 1989. Mule deer ecology research update. Idaho Dept. Fish and Game Annual Wildlife Biologists Meeting. Feb. 21-22, 1989. Boise, Idaho.
- _____ 1989. Mule deer research update. Co-ordination Meeting, Burley District BLM, Idaho Dept of Fish and Game Region 4 or 5. Mar. 28, 1989. Burley, Idaho.
- _____ 1989. Mule deer research update. U.S.F.S., Caribour Nat. For. - Idaho Dept. Fish and Game, Reg. 5, Field Tour, June 22, 1989. Malad, Idaho.
- _____ and M. J. McDonald. 1989. Influence of habitat security and hunting on mule behavior and mortality in southeastern Idaho. Annual Meetings - Northwest Section - The Wildlife Society. April 11-13, 1989. Banff, Alberta.
- McDonald, M. J., B. L. Keller and C. G. Brown. 1989. Activity patterns of mule deer (Odocoileus hemionus) in response to hunting in southeastern Idaho. Annual Meeting of the Idaho Chapter - The Wildlife Society. Feb. 23-24, 1989. Boise, Idaho.

Meetings

G.I.S. Workshop and Conference. March 8-10, 1989. Boise, Idaho.

Reports, Publications, Articles

- Brown, C.G., 1988. Mule Deer Population Identification. Prog. Rep., Project W-160-R, Study I. Idaho Department of Fish and Game, Boise.
- _____ and M.J. McDonald. 1988. Mule Deer Security. Prog. Rep., Project W-160-R, Study III. Idaho Dep. of Fish and Game, Boise.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-160-R-16
TITLE: Statewide Wildlife Research STUDY: I
SUBPROJECT: California Bighorn Sheep Ecology JOB: 2 and 3
PERIOD COVERED: July 1, 1988 to June 30, 1989

ABSTRACT

Study No. 1 Distribution and Inventory

Job 1 has been completed and a completion report will be submitted in FY 90.

Three helicopter aerial surveys of the Little Jack's Creek study area were conducted during late May and early June. Helicopter and fixed winged airplane disturbance caused radio collared sheep to move long distances (Mean = 4.0 km.). These large scale movements preclude the use of most population estimation techniques. Efforts are being concentrated on developing a sightability model and standardized survey methods. Twenty-seven tests of the observability of California bighorn sheep groups by helicopter census were recorded. The helicopter survey crew observed 17 of the 27 groups (63%) identified by ground observers.

Study No. 2 Habitat Selection

Five thousand and forty-nine wildlife and livestock observations were recorded on the Little Jack's Creek study area. The number of radio collared bighorns varied from 21 to 23. Individual rams and ram groups were located farther from escape terrain and water than ewe or ewe/lamb groups. Rams were more likely to use the flats above the canyon rim than ewe groups. Bighorn sheep were most often observed on the upper one-third of the canyon wall. Simulations of human disturbance will be initiated during FY 90.

Study No. 3 Bighorn sheep/cattle interactions

This study was inactive during the report period.

Meetings and Presentations

Date	Purpose	Location
Sep	Deadwood Fire	Boise
	Enf. Trng.	Boise
	GAO Insp. Team	Bruneau
Oct	New Emp. Ornt.	Boise
Nov	New Emp. Tour	Boise
	Dept. of Trans.	Boise
Dec	Wildlife Congress	Boise
	F.N.A.W.S. Mtg.	Boise
Jan	Bureau/Reg. 3 Mtg.	Boise
	BLM/IDFG Coord.	Boise
	Comp. Use	Moscow
	Bighorn Diseases	Boise
	Grad. Student Proj.	Boise
Feb	F.N.A.W.S. Conv.	Reno
	B.O.W. Conf.	Boise
	T.W.S., Ida. Chp. Mtg.	Boise
	Doub. Smpl. Stats	Boise
Mar	Bur. Adm./Reg. 3	Boise
	Reg. 3 District Mtg.	Boise
	Reg. 3/BLM Coord. Mtg.	Boise
	Reg. 3 Pers. Mtg.	Boise
Apr	Hunt. Safety	Boise
	Study Coord. with BLM	Boise
	Elk Data Analy.	Moscow
	Wild. Rest. Wks.	Moscow
Jun	Bighorn Species Cmttee.	Salmon
Jul	Bureau Wildlife Summer Mtg.	Island Park

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-160-R-16
TITLE: Statewide Wildlife Research STUDY: I and II
SUBPROJECT: Sage Grouse Ecology JOB: 1 and 2
PERIOD COVERED: July 1, 1988 to June 30, 1989

ABSTRACT

Study No. 1. Sage Grouse Response to a Controlled Burn.

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 will be burned in late summer 1989. Thus, we are completing the pre-burn phase of a project aimed at assessing the response of sage grouse to a prescribed burn. A total of 184 sage grouse were trapped and marked during spring 1989. Thirty-two of these birds (17 percent) were equipped with radios. Females nested from < 1 to > 5 km from the lek on which they were captured (N=20, x=6.8 km). Nesting success of radio-marked grouse decreased from 58 percent in 1987 to 40 percent in 1989. Although sample sizes were relatively small, survival appeared to remain constant over this same period.

Sage grouse winter and nesting habitat on the Big Desert was investigated. Nest site data were collected on 24 nests during 1989. Sagebrush (*Artemisia* spp.) canopy cover at nests ranged from 16 to 22% for 1986 thru 1989. Similar values were obtained for sagebrush cover at random sites. Vegetation characteristics were also measured for 39 sage grouse winter use sites and 77 sites randomly located throughout the study area.

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

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 is now being completed.

Reports, Publications, Articles:

Connelly, J. W. 1988. Sage grouse and fire: a complex issue for resource management. Idaho Wildl. 8(5):20-21.

- Connelly, J. W. 1989. Book review: Adaptive strategies and population 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. In Press.
- Gates, R. J., H. W. Browsers, and J. W. Connelly. Seasonal range fidelity in southeastern Idaho sage grouse. Peer review.
- Musil, D. D. 1988. Planting a wildlife seed. Idaho Forester. Pp. 20-21. College of Forestry, Wildlife and Range, Univ. of Idaho, Moscow.
- Musil, D. D. 1988. Sage grouse to the Sawtooth Valley: saving an isolated population. Idaho Wildl. 8(5):22-23.
- Musil, D. D. 1989. Sage grouse to the Sawtooth Valley: saving an isolated population. Pheasants Forever 7(1):32-33.
- Wakkinen, W. L. Improved spotlighting technique for trapping sage grouse. Peer review.

Meetings and Presentations:

- Connelly, J. W. and L. Doughty. 1988. Sage grouse use of wildlife water developments in southeastern Idaho. Presented at the Wildlife Water Development Symposium. Nov. 29-Dec 1., Las Vegas, NV.
- Connelly, J. W. 1989. Sage grouse and guzzlers: good management or only good PR. Presented at the Annual Meeting, NW Section, The Wildlife Society. April 11-13, Banff, Alberta, Canada.
- Musil, D. D., K. P. Reese, and J. W. Connelly. 1989. Summer habitat use by translocated sage grouse. Presented at the Annual Meeting, Idaho Chapter, The Wildlife Society. Feb. 23-24, Boise, ID.
- Musil, D. D. and K. P. Reese. 1989. Summer habitat use by translocated sage grouse. Presented at the Inland Regional Meeting, Society for Northwest Vertebrate Biology. April 8, Pullman, WA.

Wakkinen, W. L. 1989. Sage grouse nest locations and their relevance to management guidelines. Presented at the Inland Regional Meeting, Society for Northwest Vertebrate Biology. April 8, Pullman, WA.

Wakkinen, W. L., K. P. Reese, and J. W. Connelly. 1989. Sage grouse nest locations and their relevance to current habitat management guidelines. Presented at Annual Meeting, Idaho Chapter, The Wildlife Society. Feb 23-24, Boise, ID.

Wakkinen, W. L., K. P. Reese, and J. W. Connelly. 1989. Sage grouse nest locations and their relevance to current habitat management guidelines. Presented at the Annual Meeting, NW Section, The Wildlife Society. April 11-13, Banff, Alberta, Canada.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-160-R-16
TITLE: Statewide Wildlife Research STUDY: I, II & III
SUBPROJECT: Lochsa Elk Ecology JOB: _____
PERIOD COVERED: July 1, 1988 to June 30, 1989

ABSTRACT

Study No. I. Bull Elk Habitat Use.

Habitat use by elk on the Lochsa study area was evaluated using 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.

Elk sightability data were collected from 16 groups of elk and this information was incorporated into the existing sightability model. Aerial surveys were completed annually 1985-1989 and population estimates were made using the sightability model.

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

Eighty-nine elk were monitored during the 1986, 1987, and 1988 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 September and October. Shrubfields were used in proportion to their availability during September and October. Forty-four mortalities occurred during this period: 4 archery wounding losses, 6 rifle wounding losses, 4 poaching losses, 24 recovered rifle kills, 1 recovered archery kill, and 4 other mortalities. Seasonal mortality rates are calculated.

Meetings and Presentations

Meetings

<u>Date</u>	<u>Purpose</u>	<u>Location</u>
Jul	GIS progress	Moscow
Jul	West. States and Prov. Elk Workshop	Wenatchee, Wash.
Jul	Home range data	Moscow
Aug	Elk project priorities	Lewiston
Sep	IDFG enforcement training	Lewiston
Nov	IDFG staff meeting	Lewiston
Nov	Sightability data	Moscow
Nov	Wildlife Congress	Boise
Nov	New employee orientation	Lewiston
Dec	MDFWP elk sightability	Missoula, Mont.
Dec	IDFG elk modeling	Lewiston
Feb	IDFG biologist meeting	Boise
Feb	Wildlife Society meeting	Boise
Feb	IDFG Bureau-Region Coord. meeting	Lewiston
Mar	IDFG Admin.-Region Coord. meeting	Lewiston
Mar	IDFG white-tails	Lewiston
Mar	IDFG elk sightability	Boise
Apr	RMEF banquet	Spokane
Apr	IDFG enforcement training	Lewiston
Apr	U of I student field trip	Fenn
Apr	IDFG Bureau-Region meeting	Lewiston
Apr	USFS road closures	Kamiah
Apr	U of I depredation study	Moscow
Apr	Pope and Young meeting	Boise
Apr	Kamiah Chamber of Commerce	Kamiah
May	Idaho hunter survey	Missoula, Mont.
May	Elk species plan	Salmon
May	ODW sightability	John Day, Ore.
May	Animal restraint clinic	Moscow
May	USFS elk mortality and roads	Lewiston
Jun	Elk species plan	Lewiston
Jun	Elk species plan	Moscow
Jun	IDFG-USFS coord. meeting	Lowell
Jun	Elk species plan	Boise

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

_____. 1989. Elk sightability. Porg. Rep., Project W-160-R-14, Study II. Idaho Dept. Fish and Game, Boise.

_____. 1989. Elk habitat security characteristics and hunting season mortality rates. Porg. Rep., Project W-160-R-14, Study III. Idaho Dept. Fish and Game, Boise.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-160-R-16
TITLE: Statewide Wildlife Research STUDY: 1 - 4
SUBPROJECT: Bull Elk Habitat Use JOB: _____
PERIOD COVERED: July 1, 1988 to June 30, 1989

ABSTRACT

I. Study Accomplishments.

Study No. 1. Bull elk habitat use.

We are currently monitoring 47 radio-collared elk (22 bulls, 25 cows) in the Coeur d'Alene River drainage. Our goal is to monitor these animals once every 7-10 days throughout the year and more intensively during the hunting seasons. Weather has frequently altered this target schedule.

Habitat components have been delineated from aerial photographs and mapped on 7.5 min topographic maps. Preliminary ground truthing has begun.

We also completed a pilot project with the University of Idaho to study the applicability and feasibility of using GIS on this project. They digitized and processed 2 7.5 min topographic maps and produced several forms of output. I'm excited about the potential - the next step is to find money for full implementation.

Study No. 2. Elk sightability.

Field work for this project is scheduled to begin in the Coeur d'Alene River area in FY90. Flying subunits have been delineated and field maps constructed.

Study No. 3. Habitat security characteristics and hunting season mortality rates.

Thirty radio-collared elk (17 bulls, 13 cows) entered the 1988 hunting season. Eleven (7 bulls, 4 cows) were killed by hunters. Seven of 17 (41%) bulls and 4 of 13 (31%) cows were harvested. Two bull and 1 cow mortality were classified as wounding loss and 1 cow was illegally killed. Overall bull survival was .56 and cow survival was .69.

We are developing a contract with University of Montana's Institute for Tourism and Recreation Research to determine hunter density and distribution as it relates to elk mortality rates. Field work is scheduled to begin with the 1989 hunting season.

Study No. 4. Mandatory check data analysis.

I evaluated the effect of compliance rate on the quality of data collected through Region 1's mandatory check. Once compliance fell below 50%, data quality declines markedly, assuming the data collected represents a random sample.

This project was completed.

II. Meetings Attended.

Universities

Nov Participated in Naylor's thesis defense at the University of Idaho.

Dec Met with Drs. Matt Carroll and Dick Shew (WSU) re the hunter density and distribution project.

Met with Dr. Steve McCool (U of MT) re the hunter density and distribution project.

Mar Met with Dr. Yuan (U of MT) in Missoula re the hunter density and distribution project.

Met with Dr. Chang (U of I) re the GIS pilot project, in Coeur d'Alene.

Apr Met with Dr. Yuan re the hunter density and distribution project, in St. Regis.

May Met with Dr. Bunnell, Wielgas, Woods, et al. in Nelson, B.C. to plan and coordinate the Selkirk grizzly bear work.

Met with Dr. Yuan to discuss progress on the hunter density and distribution project, in Missoula.

Jun Met with Dr. Chang re the GIS pilot project, in Moscow.

U.S. Forest Service and other agencies

Jul Met with IPNF personnel re habitat work and FS monitoring program.

Aug Met with IPNF personnel re FS cooperation and data needs.

Sep Met with Harrington (IPNF) and Brown (BLM) re funding for Coeur d'Alene elk project.

Attended the IPNF/IDFG coordination meeting at the Shoshone Work Center.

Oct Met with IPNF personnel re use of Global Positioning Systems.

Dec Attended the International Mountain Caribou Technical Committee meeting in Coeur d'Alene.

Jan Met with Harrington and Aldrich (IPNF) re the Challenge Grant program.

Feb Met with Harrington and Lider (IPNF) re testing the effectiveness of road closures as they pertain to elk.

Apr Met with the Fernan Ranger District re the road closure project, in Coeur d'Alene.

Met with the Wallace Ranger District re the road closure project, in Silverton.

May Met with the IPNF Management Team to discuss the elk project and direction, in Coeur d'Alene.

Attended the IPNF Biologists's meeting to discuss the elk project, in Post Falls.

Met with Alan Christensen, et al. in Missoula to discuss elk vulnerability and road access.

Attended the IPNF/IDFG/Forest Industry meeting in Coeur d'Alene to discuss elk and road management.

Met with the Fernan Ranger, Don Bright, re elk project progress and direction, in Coeur d'Alene.

Jun Met with Ed Lider (Wallace RD) re the road closure project, in Coeur d'Alene.

Idaho Department of Fish and Game

Aug Met with Kuck and Unsworth in Lewiston to discuss project direction.

Sep Attended the Aerobics Institute Workshop in Boise.

Dec Met with Kuck and Unsworth in Lewiston to discuss data sets, project direction, and use of survival rate information.

Jan Attended the Region 1/BOW coordination meeting.

Feb Met with Regional personnel re Selkirk grizzly bear mortalities.

Attended the statewide biologists' meeting in Boise.
Met with Kuck, Unsworth and Beecham re possibilities for
white-tailed deer research in Region 2.

Attended the Region 1 big game regulations meeting.

Attended the Region 1/Bureau of Administration coordination
meeting.

Mar Attended Physical Fitness Instructors meeting in Boise.

Attended public meeting for big game regulations in Coeur
d'Alene.

May Attended the Immobilizing Drug Workshop in Pullman.

Attended a Species Planning meeting in Salmon.

Jun Attended a black bear/mountain lion species planning meeting
in Lewiston.

Attended a species planning meeting in Moscow where McLaughlin
presented some preliminary results of his hunter survey.

Attended a species planning meeting in Boise to explore ways
to incorporate the hunter survey information.

Miscellaneous

Feb Attended the Idaho Section of The Wildlife Society meeting in
Boise.

III. Reports and Publications

Zager, P. 1989. Elk habitat in the northwestern United States.

Pages 130-134 in Ferguson, D., P. Morgan, and F. Johnson
(compilers), Land Classification Based on Vegetation: Applications
for Resource Management. U.S. Dep. Agric., For. Serv. GTR
INT-257. 315pp.

_____, and L. Kuck. 1988. Elk habitat security
characteristics and hunting season mortality rates. Prog. Rep.,
Project W-160-R, Study III. Idaho Dep. Fish and Game, Boise.

_____ and _____. 1989. Elk sightability. Prog. Rep.,
Project W-160-R, Study II. Idaho Dep. Fish and Game, Boise.

_____ and _____. 1989. Bull elk habitat use. Prog.
Rep., Project W-160-R, Study III. Idaho Dep. Fish and Game, Boise.

_____ and _____. 1989. Mandatory check data analysis.
Compl. Rep., Project W-160-R, Study IV. Idaho Dep. Fish and Game,
Boise.

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

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-160-R-16
TITLE: Statewide Wildlife Research STUDY: I
SUBPROJECT: White-tailed Deer Ecology JOB: 1 and 2
PERIOD COVERED: July 1, 1988 to June 30, 1989

ABSTRACT

Radio locations were established for the surviving, original habitat study animals and replacements during the summer and early winter periods of 1988. Over the entire study, 827 locations were established for the study animals, and 590 were selected for habitat analysis. The habitat data was entered for multivariate analysis of habitat use. All 827 locations were used for home range analysis. Habitat units were mapped on aerial photographs on all summer home ranges and the winter composite home range. Each stand was ground truthed or checked against vegetation plots sampled at deer locations. Snow depth and sinking depth were measured at weekly intervals along six transects situated in sites representative of three stand types. Fecal samples were submitted for food habits analysis to the Composition Analysis Laboratory, Colorado State University. Field work was completed in December 1988.

Data analysis was initiated in January 1989, concurrent with the last semester of class work. Individual animal locations were separated into summer and winter home ranges and analyzed on Program Home Range. The results were summarized and the home ranges were plotted.

The deer location plots were separated into seven seasons and subjected to multivariate analysis of variance and pairwise comparisons with Hotelling's T². A pilot discriminant analysis was run on a subsample of the locations to further detect problems with season boundaries. The number of seasons was reduced to six, and early and late winter were combined for analysis due to their similarity. The final data set was analyzed with canonical analysis and discriminant analysis. Comparisons were made between each individual season and all other seasons combined, and between adjacent seasons. The draft final report is in progress.

Meetings and Presentations

<u>Date</u>	<u>Purpose</u>	<u>Location</u>
Aug	USFS-Campground Presentation	Priest Lake
Sept	USFS-Priest Lake District Ranger	Priest Lake
Nov	IDFG-New Employee Presentation	Priest Lake
Nov	USFS-Paul Harrington	Coeur d'Alene

Reports, Publications, Articles:

Pauley, G.R., P. Zager, and L. Kuck. 1989. White-tailed deer habitat use at Priest lake. Prog. Rep., Project W-160-R-15, Study I. Idaho Department of Fish and Game, Boise.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-160-R-16
TITLE: Statewide Wildlife Research STUDY: I
SUBPROJECT: Cottonwood Bighorn Sheep Ecology JOB: 2
PERIOD COVERED: July 1, 1988 to June 30, 1989

ABSTRACT

In December 1986, thirteen California bighorn sheep were trapped from the Little Jack's Creek herd and released into Big Cottonwood Canyon in southcentral Idaho. Four were equipped with radio collars. In December 1987, an additional ten sheep were captured and released these included nine radio collars. In November 1988, another 14 sheep, 8 ewes, 5 rams, and 1 lamb, were translocated from Little Jack's Creek to Big Cottonwood Creek. Six were equipped with radio transmitters. Possible effects of livestock activities were measured through changes in preference for specific habitat components by bighorn sheep over time. Bighorn sheep were located five days per week, from May 5 until June 30. Cattle were located after their placement on the allotments on May 23, two days per week. Lamb count for the 1989 season was nine, bringing the population number to 45. An adult ewe was found dead by fishermen, cause of death was not determined. Bighorn sheep movements were compared on a temporal scale to movements of cattle grazed on leased Forest Service pastures. habitat components of areas used by bighorn sheep and cattle were recorded for later use in data analysis. Field work for this season will continue until mid-October 1989.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-160-R-16
TITLE: Statewide Wildlife Research STUDY: I
SUBPROJECT: Pheasant Depredation Study JOB: 2
PERIOD COVERED: July 1, 1988 to June 30, 1989

ABSTRACT

Hawk-kites, provision of alternate food, bird scaring reflective tape, and firecrackers on fuse rope were evaluated in the spring of 1989 to determine their effectiveness at reducing ring-necked pheasant damage to sprouting corn. Evaluations occurred on production hybrid sweetcorn seed fields surrounding the towns of Nampa and Caldwell in southwestern Idaho. Treatments reduced damage 86, 85, 84, and 72 percent respectively. Damage was correlated to the amount of cover bordering fields. Pheasants began damaging fields shortly after seed germination and continued until the sprouts exceeded 10 centimeters in height. Recommendations to minimize damage include locating fields away from cover, planting at later dates, and applying damage control treatments prior to the onset of damage.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-160-R-16
TITLE: Statewide Wildlife Research STUDY: I
SUBPROJECT: Elk Double Sample Survey JOB: 2
PERIOD COVERED: July 1, 1988 to June 30, 1989

ABSTRACT

Study No. 1. Elk double sample survey evaluation.

Two double sample survey flights were conducted in each of the two study units. Population estimates derived from these surveys were; Unit 31 - 1220 and 959, Unit 22 - 1951 and 1953. Elk counts and population estimates were relatively consistent between replicates in both 1988 and 1989. The LORAN-C navigation system error averaged 0.24 km. Elk were more visible on evening flights (62%) than on morning flights (29%). Elk groups in open habitat types had the highest sightability (91%). Elk in forested habitat types were visible less than 30% of the time. Data from the study offers promise for the use of the double sample survey technique by wildlife managers for population estimates of elk occupying open winter/spring range.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-160-R-16
TITLE: Statewide Wildlife Research STUDY: I
SUBPROJECT: Columbian Sharp-Tailed Grouse JOB: 1
PERIOD COVERED: July 1, 1988 to June 30, 1989

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. A total of 35 birds was captured and 22 were equipped with radios. Approximately 250 radio locations were obtained on these birds from 20 January to 30 June. Sixty-seven percent (N=12) of the females followed through the breeding season were successful nesters. This includes one successful and one unsuccessful renesting attempt. The mean distance from trap site to nest site (N=12) was 1.7 km and ranged from 0.3 to 4.8 km.

PROGRESS REPORT
SURVEYS AND INVENTORY

STATE: Idaho PROJECT NO.: W-160-R-16
TITLE: Statewide Wildlife Research STUDY: I
SUBPROJECT: Effects of the Conservation JOB: 2
Reserve Program on Wildlife
PERIOD COVERED: July 1, 1988 to June 30, 1989

ABSTRACT

Field work was initiated in May. Thus far, relatively few upland game bird nests have been found in Conservation Reserve Program (CRP) fields. Both gray partridge (Perdix perdix) and sharp-tailed grouse (Tympanuchus phasianellus) broods were observed in and adjacent to CRP fields. Preliminary results suggest that the CRP program may be of most benefit to sharp-tailed grouse and mourning doves (Zenaida macroura).

PROGRESS REPORT
SURVEYS AND INVENTORY

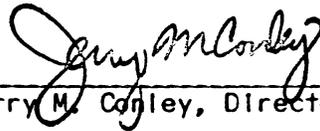
STATE: Idaho PROJECT NO.: W-160-R-16
TITLE: Statewide Wildlife Research STUDY: 1
SUBPROJECT: Bighorn Sheep Research JOB: 2
PERIOD COVERED: July 1, 1988 to June 30, 1989

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 their movements were monitored from January through June 1989. Movements to summer range began in June. 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 preliminary data are now being analyzed. Field work will begin again in December 1989.

Approved by:

IDAHO DEPARTMENT OF FISH AND GAME



Jerry M. Conley, Director



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Bureau of Wildlife



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Wildlife Research Manager
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