

IDAHO

DEPARTMENT OF FISH AND GAME

Jerry M. Conley, Director

Project W-168-C-11

Progress Report



FEDERAL AID TO WILDLIFE RESTORATION

Study I, Job 1: Wildlife Research Coordination

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July 1, 1993 to June 30, 1994

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Boise, Idaho

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**PROGRESS REPORT
STATEWIDE WILDLIFE RESEARCH**

STATE: Idaho **PROJECT TITLE:** Wildlife Research Coordination
PROJECT NO.: W-168-C-11
STUDY NO.: I
JOB: 1

PERIOD COVERED: July 1, 1993 to June 30, 1994

ABSTRACT

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

The Idaho Department of Fish and Game is in the process of wrapping up the Coeur d'Alene River elk project and will begin the process of identifying a new research project in FY 95. A problem analysis for the upland game research project was completed and work continues on developing a study plan for that project.

OBJECTIVES

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

Meetings and Presentations

<u>Date</u>	<u>Meeting</u>	<u>Location</u>
08/02/93	Upland Bird Research Meeting	Boise
08/03-04/93	Winter Feeding Meeting	Boise
08/24-26/93	Tri-State Interagency Brucellosis Meeting	Jackson WY
10/19/93	Hunters Rally	Boise
10/22-23/93	ODFW Cascades Bear Study	Corvallis OR
10/25/93	ODFW Cascades Bear Study	Portland OR
10/26-28/93	Federal Aid Meeting	Newport OR
11/02/93	Upland Bird Research Meeting	Idaho Falls
11/03/93	Upland Bird Research Meeting	Boise

11/04/93

Upland Bird Research Meeting

Moscow

<u>Date</u>	<u>Meeting</u>	<u>Location</u>
11/23/93	License Point of Sale Meeting	Boise
11/29/93	Upland Bird Research Meeting	Boise
12/13-14/93	Regional Wildlife Managers Meeting	Boise
12/16/93	Upland Bird Research Meeting	Jerome
12/29/93	Upland Bird Research Meeting	Boise
01/04/94	Upland Bird Research Meeting	Jerome
01/17-19/94	ODFW Cascades Bear Study	Oakridge OR
01/22/94	Hunters Rally	Boise
01/25/94	Coeur d'Alene Basin Restoration Meeting	Boise
02/05/94	Project Wild Workshop	Boise
02/08/94	Bureau-Region Meetings	Idaho Falls
02/10/94	Bureau-Region Meetings	Boise
02/15/94	Bureau-Region Meetings	Coeur d'Alene
02/16/94	Bureau-Region Meetings	Lewiston
02/23-25/94	5th Western Black Bear Workshop	Provo UT
03/04-05/94	Idaho Chapter, The Wildlife Society Meeting	Post Falls
04/03/94	Regulations Meeting	Boise
05/14-19/94	ODFW Cascades Bear Study	Oakridge OR

FINDINGS

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

Schneider, J. W., K. P. Reese, J. W. Connelly, and J. H. Klott. 1994. Winter food habits of Columbian sharp-tailed grouse. Presented at the annual meeting of the Idaho Chapter, The Wildlife Society. March 3-5. Post Falls, ID.

Ulliman, M. J., K. P. Reese, J. W. Connelly, and J. H. Klott. 1994. Winter habitat use of Columbian sharp-tailed grouse. Presented at the annual meeting of the Idaho chapter, The Wildlife Society. March 3-5. Post Falls, ID.

Publications

Apa, A. D., K. P. Reese, and J. W. Connelly. An evaluation of nest placement theory using artificial and Columbian sharp-tailed grouse nests. *Ecology*. Submitted.

Blus, L. J., and J. W. Connelly. 1993. Use of radiotelemetry to determine exposure and effects of organophosphorus insecticides on sage grouse. *Proc. Soc. Envir. Toxic. and Chem.* In press.

Church, K. E., J. W. Connelly, and J. W. Enck. 1994. The role of non-governmental organizations in gamebird conservation. *Trans. N.Am. Wildl. and Natur. Res. Conf.* In press.

Connelly, J. W. 1993. Trends in the editorial process for publications of The Wildlife Society. *Wildl. Soc. Bull.* 21:194-199.

Connelly, J. W., R. A. Fischer, A. D. Apa, K. P. Reese, and W. L. Wakkinen. 1993. Renesting by sage grouse in southeastern Idaho. *Condor.* 95:1041-1043.

Fischer, R. A., A. D. Apa, W. L. Wakkinen, K. P. Reese, and J. W. Connelly. 1993. Nesting-area fidelity of sage grouse in southeastern Idaho. *Condor.* 95:1038-1041.

Giesen, K. M., and J. W. Connelly. 1993. Guidelines for management of Columbian sharp-tailed grouse habitats. *Wildlife Soc. Bull.* 21:325-333.

Musil, D. D., J. W. Connelly, and K. P. Reese. 1993. Movements, survival and reproduction of sage grouse translocated into central Idaho. *J. Wildl. Manage.* 57:85-91.

Musil, D. D., K. P. Reese, and J. W. Connelly. 1994. Nesting and summer habitat use by sage grouse translocated into central Idaho. *Great Basin Natur.* In press.

Robertson, M. D., K. P. Reese, and J. W. Connelly. Movements and distribution of wintering sage grouse in southeastern Idaho. Peer review.

The purpose of the survey was to determine hunter densities at a finer scale of resolution than obtainable through the statewide telephone survey. We have successfully contacted 516 hunters and recorded approximately 2700 hunter days of effort. The survey will be repeated for the last time this year with a sampling goal of 400 successful contacts.

One cow elk was killed during the archery season. Six bull and 2 cow elk were killed during the general rifle season. No elk were killed during the muzzleloader season. Of the 9 elk killed during the 1993 hunting seasons, 7 were legal kills recovered by sportsman and 2 were unrecovered wounding losses. Survival rates among road access treatment areas maintained a trend towards increasing survival with decreasing open road densities. Bull mortality remained \geq twice as high in the roaded treatment as it was in the unroaded treatment.

MEETINGS AND PRESENTATIONS

Meetings

Date	Purpose	Location
July	Lochsa/CDA elk research coordination	Kamiah
Aug	Habitat selection functions workshop	Boise
Sep	IDFG-UI structure sightability products upgrade	Moscow
Sep	IDFG-Washington Dep. Game WTD monitoring	CDA
Oct	GPS training	Craig Mt.
Oct	IDFG-RMEF coordinate I&E efforts	CDA
Nov	Discuss statewide upland game research priorities	Moscow
Nov	IDFG-RMEF coordinate I&E efforts	CDA
Dec	Progress discussions Dave Vales work	LaGrande
Jan	IDFG-USFS discuss public opinion survey approach	CDA
Feb	Raptor handling and care training	Athol
Mar	Idaho chapter TWS meeting	Post Falls
Mar	Elements of supervision training	CDA
Mar	R-1 and R-2 low calf:cow ratios conclave	Moscow
Mar	N. Am. Moose conf. and workshop	Idaho Falls
Apr	Research conclave low calf:cow ratios	Boise
Jun	Meet the IDFG sportsman's breakfast	CDA

Presentations

Leptich, David J. 1993. CDA Elk Project mortality studies. USFS - IDFG Commission coordination tour. McCall, Idaho.

Leptich, David J. 1993. Hunter Education, Coeur d'Alene, Idaho.

Leptich, David J. 1993. Project Wild Population Ecology. Twin Lakes Jr. Boys summer camp. Twin Lakes, Idaho.

Leptich, David J. 1994. Monitoring Large Mammals. Oregon Chapter TWS. Sun River, Oregon.

REPORTS, PUBLICATIONS, ARTICLES

Leptich, D. J., and P. Zager. 1994. Bull elk habitat use. Prog. Rep., Project W-160-R, Study I. Idaho Department of Fish and Game, Boise.

Leptich, D. J., and P. Zager. 1994. 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. 1994. Elk sightability. Completion Rep., Project W-160-R, Study II. Idaho Department of Fish and Game, Boise.

Leptich, D. J. 1994. Agricultural development and its influence on raptors in southern Idaho. Northw. Sci. 68: in press.

Leptich, D. J., D. J. Beck, and D. E. Beaver. 1994. Aircraft-based LORAN-C and GPS accuracy for wildlife research on inland study sites. Wildl. Soc. Bull. 22: in press.

and 0.05 hunter-days/mi²/day/subunit (0.77, 3.01, and 2.01 100-hunter-days/km²/day/subunit) in the roaded, managed access, and unroaded treatment areas, respectively, using a sample of about 208 hunters first contacted in the field. Using a sample of about 99 hunters obtained from the 1992 statewide list of declared Unit 10, 10A, and 12 hunters, hunter densities were estimated at 0.01, 0.01, and < 0.00 hunter-days/mi²/day/subunit) (0.23, 0.42, and 0.08 100-hunter-days/km²/day/subunit) in the roaded, managed access, and unroaded treatment areas, respectively. These estimates need to be corrected for sampling intensity and with the 1993 statewide telephone survey results to obtain absolute densities.

Study No. II. Optimum Yield of Elk.

Job 1: The effect of harvest on elk population size and composition in Idaho.

We initiated an antlerless elk management program in Idaho in 1992 that uses some underlying principles of experimental design to evaluate the effects of cow harvest rates on elk population dynamics. During the hunting seasons of 1992-96 we will attempt to harvest a relatively constant fraction of the antlerless elk population in each of 11 GMUs (3 control units - 2 to 5% harvest, 4 low harvest rate units - 6 to 10% harvest, 4 high harvest rate units - 14 to 30% harvest) using the controlled-hunt permit system. Harvest rates in 1993 averaged 4.8% different than target rates, with the largest difference in the high harvest rate units. Three of these averaged 10.8% lower than the target rates and for 1 unit the harvest rate was 6.7% higher than the target. Ninety-five percent confidence intervals on harvest in 1993 averaged 25.8% and were larger than the 12.4% average 95% confidence intervals in 1992. Confidence intervals need to be reduced for the 1994 hunting season to 1992 levels. Hunter success in 1993 averaged 34.9%, compared to 53.5% in 1992, perhaps due to unfavorable weather during the 1993 season. Units 28 and 58 have not been aerially surveyed since the project began, which makes analyses of population response to harvest treatments difficult. Populations in 5 of the 9 units for which we have data have declined 3% to 16.2%; populations in the other 4 units have increased 7.7% to 59%. No relationship could be detected between antlerless elk harvest rate and population change. A positive relationship between antlerless elk harvest rate in 1992 and the subsequent change in calf:cow ratios the following years can be demonstrated, but additional years of data are necessary to investigate this further.

Study No. III. Elk Sightability

Job 1: Develop an elk sightability model for the Bell 206 Jet Ranger helicopter.

Aerial surveys are an important method for estimating the abundance of big game species. A major problem of many surveys, however, is that it is unknown what fraction of animals is not observed. Logistic regression models that correct for visibility bias during aerial surveys of elk have recently been developed, using radio-collared animals, for use with the Hiller UH-12E and Bell 47 helicopters. We initiated a project to develop a regression model that would correct for visibility bias when using a Bell 206 Jet Ranger, a widely available helicopter but with less visibility below

and to the sides of the aircraft for observers. To estimate the time and effort that would be required to develop a new model using radio-collared animals, Potlatch Corporation and the Idaho Department of Fish and Game conducted 2 aerial surveys of the known (size and composition) elk population at the Starkey Experimental Forest and Range using the Jet Ranger in winter 1993-94. Raw counts will be used with the regression models developed for the Hiller UH-12E and Bell 47 helicopters to estimate accuracy and precision of estimates. A method to develop a regression model for the Jet Ranger using these kinds of data, rather than from radio-collared animals, was investigated using a laboratory experiment. Results of the experiment suggest that helicopter types which offer less visibility to observers can decrease search rate (flight speed) to maintain comparable elk detection bias. This experiment will be repeated to maintain the same search rates for the different simulated helicopter types.

TRAINING, MEETINGS, AND PRESENTATIONS (Gratson)

Nonenforcement training	Salmon River
North Idaho Research - White-tailed Deer	Spokane
Elk vulnerability & habitat effectiveness (cooperative implementation with IDFG & US Forest Service & Nez Perce Tribe Resource Selection Function Workshop	Grangeville
Big Game Regulations	Boise
CPR and First Aid	Lewiston
Idaho Chap. The Wildlife Society (paper presenting Jet Ranger model development)	Lewiston
IDFG & US Forest Service Coordination (presentation on elk research)	Post Falls
Idaho Department of Lands (presentation of elk Myrtle research at two meetings)	Lowell
Unit 12 evaluation and calf:cow ratios	Kamiah,
Boise	Moscow,
Region 2 Wildlife Council (oral presentation of elk research)	Kamiah
Washington State University (oral presentation of elk research to graduate wildlife class)	Pullman

TRAINING, MEETINGS, AND PRESENTATIONS (Zager)

<u>Date</u>	<u>Purpose</u>	<u>Location</u>
July	Elderhostle Program on the Selkirk Ecosystem	Moscow
Aug	Western States and Provinces Deer Workshop	Parksville, BC

Sep	Upland bird research coordination meeting (QU, BLM, UI) White-tailed deer population monitoring approaches (WDW, UW)	Moscow Spokane
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Date	Purpose	Location
Sep	Roads, elk, and grizzly bear coordination (USFWS) White-tailed deer coordination (WDW) Nonenforcement training	Lewiston CDA Myrtle
Nov	Upland bird research coordination (IDFG) Pine marten project coordination (UMT)	Moscow Missoula
Dec	Elk Vulnerability meeting (USFS, ODFW, IDFG)	LaGrande
Jan	Elk vulnerability for Region 2 COs Hunter's Rally	Myrtle Lewiston
Feb	All Region 2 staff meeting re big game regulations Regulations meeting with BOW SE Deer Study Group meeting	Lewiston Lewiston Charlottesville
Mar	Idaho Chapter of The Wildlife Society Regulations meeting in Grangeville Unit 12 elk population status meeting (UI, WSU, IDFG)	Post Falls Grangeville Moscow
Apr	Unit 12 elk population status Caribou recovery team meeting	Boise Spokane
May	USFS/IDFG coordination meeting Nonenforcement training	Lowell Myrtle
Jun	Potlatch Corp./IDFG GIS meeting Mark Secord thesis defense	Moscow Missoula

REPORTS, PUBLICATIONS, AND ARTICLES

Compton, B. B., P. Zager, and G. Servheen. 1993. Survival and cause-specific mortality of translocated woodland caribou. Submitted to WSB.

Edelmann, F., K. P. Reese, and P. Zager. 1942. Cottonwood turkey ecology. Study I. Turkey

- winter/spring habitat use, movements, productivity, and survival. Fed. Aid Wildl. Restor., Job Prog. Rep., Proj. W-160-R. Idaho Dep. Fish and Game, Boise.
- Heekin, P. E., R. Guse, K. P. Reese, and P. Zager. 1993. Mountain quail ecology. Fed. Aid Wildl. Restor., Job Prog. Rep., Proj. W-160-R. Idaho Dep. Fish and Game, Boise.
- Heekin, P. E., K. P. Reese, and P. Zager. 1994. Fall/winter mountain quail ecology. Fed. Aid Wildl. Restor., Job Prog. Rep., Proj. W-160-R. Idaho Dep. Fish and Game, Boise.
- Heekin, P. E., K. P. Reese, and P. Zager. 1993. Current research on mountain quail in Idaho (abstract). Page 186 *in* Church, K. E., and T. V. Dailey (eds.). Quail III: National Quail Symposium. KS Dep. Wildl. and Parks, Pratt.
- Gratson, M. W. 1993. Adaptive resource management: policy as hypotheses, management by experiment. Editorial, *in* Idaho Chapter of The Wildlife Society Newsletter. Winter 1993.
- Gratson, M. W. 1993. Ineffective communication between wildlife research and management: new bridges or new paradigms needed? Editorial, *in* Idaho Chapter of The Wildlife Society Newsletter. Summer 1993.
- Gratson, M. W., and P. Zager. 1994. Lochsa elk ecology. Study III. Elk sightability model for the Bell 206 Jet Ranger helicopter. Fed. Aid Wildl. Restor., Job Prog. Rep., Proj. W-160-R. Idaho Dep. Fish and Game, Boise.
- _____, and _____. 1994. Lochsa elk ecology. Study II. Optimum yield of elk. Fed. Aid Wildl. Restor., Job Prog. Rep., Proj. W-160-R. Idaho Dep. Fish and Game, Boise.
- _____, and _____. 1993. Lochsa elk ecology. Study I. Road closures and bull elk mortality. Fed. Aid Wildl. Restor., Job Prog. Rep., Proj. W-160-R. Idaho Dep. Fish and Game, Boise.
- _____, J. W. Unsworth, P. Zager, and L. Kuck. 1993. Initial experiences with adaptive resource management for determining appropriate antlerless elk harvest rates in Idaho. N. Amer. Wildl. Nat. Resourc. Conf. 58:610-619.
- Koza, J., K. P. Reese, and P. Zager. 1994. Seasonal habitat use, population characteristics, and management of chukar partridge in west-central Idaho. Fed. Aid Wildl. Restor., Job Prog. Rep., Proj. W-160-R. Idaho Dep. Fish and Game, Boise.
- Leptich, D. J., and P. Zager. 1994. Coeur d'Alene elk ecology project. Study I. Bull elk habitat use. Fed. Aid Wildl. Restor., Job Prog. Rep., Proj. W-160-R. Idaho Dep. Fish and Game, Boise.

- _____, and _____. 1994. Coeur d'Alene elk ecology project. Study II. Elk sightability models. Fed. Aid Wildl. Restor., Job Comp. Rep., Proj. W-160-R. Idaho Dep. Fish and Game, Boise.
- _____, and _____. 1994. Coeur d'Alene elk ecology project. Study III. Elk habitat security characteristics and hunting season mortality rates. Fed. Aid Wildl. Restor., Job Prog. Rep., Proj. W-160-R. Idaho Dep. Fish and Game, Boise.
- Pauley, G., J. M. Peek, and P. Zager. 1993. Predicting white-tailed deer habitat use in northern Idaho. *J. Wildl. Manage.* 57:904-913.
- Secord, M., S. Winslow., and P. Zager. 1993. White-tailed deer/forest management relations. Fed. Aid Wildl. Restor., Job Comp. Rep., Proj. W-160-R. Idaho Dep. Fish and Game, Boise.
- Tomson, S. 1994. Pine marten ecology. Fed. Aid Wildl. Restor., Job Prog. Rep., Proj. W-160-R. Idaho Dep. Fish and Game, Boise.
- USFWS. 1994. Recovery plan for woodland caribou in the Selkirk Mountains. Portland, OR. (Zager was team leader and plan author).
- Wielgus, R. B., F. L. Bunnell, W. L. Wakkinen, and P. Zager. 1994. Population dynamics of Selkirk Mountain grizzly bears. *J. Wildl. Manage.* 58:266-272.

located. During July and August, physical and vegetal measurements were taken at all nest sites, random dependent sites associated with nests, and random independent sites, for a total of 39 habitat plots completed. The availability of habitats will be compared against the proportion of use they receive. Chi-square goodness of fit, t-tests, linear regression, and nonparametric procedures will be used in analysis of the data.

**PROGRESS REPORT
STATEWIDE WILDLIFE RESEARCH**

STATE: Idaho **PROJECT TITLE:** Statewide Wildlife Research
PROJECT NO.: W-160-R-21
SUBPROJECT NO.: 35 **STUDY NAME:** Mule Deer Ecology
STUDY NO.: II-IV

PERIOD COVERED: July 1, 1993 to June 30, 1994

ABSTRACT

Subproject 35. Mule Deer Ecology

Mule Deer Mortality

Deer (n=257) were radio collared on 3 study areas during 1992-94. Overall survival rates varied between winters ($X^2 = 45.037$, $df = 2$, $P < 0.001$). With both sexes and all age classes combined, survival rates were 58% in the winter of 1992-93 and 87% during the winter of 1993-94. Doe survival rates did not vary between the 2 winters ($X^2 = 1.003$, $df = 1$, $P = 0.317$). A greater percentage of bucks died during the winter of 1992-93 ($X^2 = 9.713$, $df = 1$, $P = 0.002$) than during 1993-94. A greater percentage of fawns also died during the winter of 1992-93 ($X^2 = 30.335$, $df = 1$, $P < 0.001$) than during 1993-94. Survival rates were similar among study areas during winter, 1992-93 ($X^2 = 0.191$, $df = 2$, $P = 0.909$), but were different during 1993-94 ($X^2 = 9.773$, $df = 2$, $P = 0.008$). Most of this difference was due to differences in fawn survival; 44% of the fawns survived on the Owyhee study, while the Bennett Mountain and Blacks Creek study areas had 90% fawn survival ($X^2 = 14.069$, $df = 2$, $P = 0.001$). During winter 1994, buck survival did not vary significantly among study areas ($X^2 = 0.677$, $df = 2$, $P = 0.713$). Doe survival was also similar among study areas during the winter of 1993-94 ($X^2 = 0.360$, $df = 2$, $P = 0.835$). I calculated annual survival rates for the period 6/1/93 to 5/31/94. Annual rates did not vary by study area during this time period ($X^2 = 1.055$, $df = 2$, $P = 0.590$). Annual survival rates were also similar for bucks (78%) and does (77%) ($X^2 = 0.013$, $df = 1$, $P = 0.909$). I calculated summer survival rates for the period 6/1/93 to 8/31/94. Summer rates did not vary by study area during this time period ($X^2 = 2.540$, $df = 2$, $P = 0.281$). Summer survival rates were also similar for bucks (96%) and does (95%) ($X^2 = 0.033$, $df = 1$, $P = 0.856$). During the fall (9/1/93 to 11/30/93) survival rates were similar among the 3 study areas ($X^2 = 0.832$, $df = 2$, $P = 0.660$), but they differed by sex ($X^2 = 4.011$, $df = 1$, $P = 0.045$). Bucks had a 67% survival rate during fall and does had a 86% survival rate.

Mule Deer Sightability

During 1993-94, 158 sightability data points were collected on the Owyhee, Blacks Creek, and Bennett Mountain study areas. These data were combined with 255 data points from southeast Idaho (Ackermann 1988). A sightability model has been developed. To determine the best timing for sightability surveys, 4 surveys were flown during winter and 4 additional surveys were flown during spring, 1991-92, in the Wolf Creek and Deer Creek drainages of Unit 11. The raw data have been summarized.

Mule Deer Harvest Estimation

I used fishery access point methods to estimate deer harvest. I estimated the total deer harvest in Unit 40 to be 294 (224 - 364, 90% CI) (Table 3). The 90% confidence interval for the high use days was 29% of the estimate. The low use days had a larger confidence interval (48% of the estimate) because of the relatively high number of deer checked on the second day of the hunting season. The unit total confidence interval was 24% of the estimate.

Meetings and Presentations:

MONTH	MEETING	LOCATION
Jul	Presentation to Deer Hunters of Idaho	Boise
Jul	Presentation on Mule Deer (BLM)	Boise
Aug	Western States and Provinces Deer Workshop	Parksville, B. C.
Aug	Winter Feeding Meeting (IDFG)	Boise
Oct	Coordination Meeting (IDFG/BLM)	Nampa
Oct	Presentation on Mule Deer (IDFG)	Nampa
Nov	Research Meeting (IDFG)	Boise
Nov	Presentation on Mule Deer (IDFG)	Boise
Nov	Presentation on Mule Deer (IDFG)	Emmett
Dec	Presentation on Mule Deer (IDFG)	Boise
Dec	Presentation on Mule Deer (IDFG)	Boise
Dec	Managers Meeting (IDFG)	Boise
Jan	Elk Vulnerability (Targhee NF)	St. Anthony

MONTH	MEETING	LOCATION
Jan	Sportsmen Meeting	Twin Falls
Feb	Presentation on Mule Deer (Giant Buck Society)	Boise
Feb	Wildlife Bureau/Region 3	Nampa
Mar	Sightability Meeting (CDW)	Fort Collins
Mar	Wildlife Society	Post Falls
Mar	Presentation on Mule Deer (TV Trail Riders)	Boise
May	Modeling Meeting (IDFG)	McCall
June	Oldtimers Meeting (IDFG)	Brownlee
June	ISTS (IDFG)	Boise

Reports, Publications, Articles:

Milner, G. B., and J. W. Unsworth. 1994. Region 3 mule deer habitat use. Job Progress Report, Project W-160-R-21. 17 pp.

Gray, C. J., and J. W. Unsworth. 1994. Region 4 mule deer habitat use. Job Progress Report, Project W-160-R-21. 16 pp.

Unsworth, J. W. 1993. Mule deer ecology. Study II: Mule deer mortality. Job Progress Report, Project W-160-R-21. Idaho Dept. Fish and Game, Boise. 10 pp.

Unsworth, J. W. 1993. Mule deer ecology. Study III: Mule deer sightability. Job Progress Report, Project W-160-R-21. Idaho Dept. Fish and Game, Boise. 8 pp.

Unsworth, J. W. 1993. Mule deer ecology. Study IV: Mule deer harvest estimation. Job Progress Report, Project W-160-R-21. Idaho Dept. Fish and Game, Boise. 10 pp.

Meetings and Presentations

Gazda, R. J. 1994. Duck nesting success and Russian olives at Sterling Wildlife Management Area. Presented at the annual meeting of the Idaho Chapter, The Wildlife Society. March 3-5. Post Falls, ID.

Publications

Gazda, R. J. and J. W. Connelly. 1993. Ducks and predators: more ducks with fewer trees. Idaho Wildl. 13(6):8-10.

Ball, I. J., R. J. Gazda, and D. B. McIntosh. 1994. A simple device for measuring survival time of artificial nests. J. Wildl. Manage. In press.

Gazda, R.J. 1994. Duck productivity and nest predation in southeastern Idaho. M.S. thesis. Univ. of Montana. Missoula. 60 pp.

**PROGRESS REPORT
STATEWIDE WILDLIFE RESEARCH**

STATE: Idaho **PROJECT TITLE:** Statewide Wildlife Research
PROJECT: W-160-R-21
SUBPROJECT: 37 **SUBPROJECT:** Canada Goose Ecology
STUDY: I-III

PERIOD COVERED: July 1, 1993 to June 30, 1994

ABSTRACT

Study I: Evaluation of Population Trend and Harvest Estimates

Weekly breeding pair counts (SBPC), during March, April, and May were conducted on the Snake, Payette, and Boise Rivers. These surveys were conducted to ascertain the peak period of breeding pair numbers, describe the breeding distribution, determine the amount of variation inherent in this type of survey, give the researcher experience in conducting the surveys, and to determine the problems associated with the survey technique and interpreting the results. Peak pair numbers were observed during the 4/10-4/17 period for all three survey areas. Comparisons of data generated on research flights were made to similar data collected by Region 3 management personnel on their regularly scheduled SBPC surveys. Several potential reasons for the high variances observed in Regional SBPC surveys were identified.

One hundred thirty locally produced Canada geese were equipped with neck collar-mounted radio transmitters and U. S. Fish and Wildlife Service (USFWS) aluminum leg bands and then released. Radio-collared geese were monitored through the 1993 hunting season. Survival of radio-collared geese was 71% for adults and 64% for young. Harvest rates of radio-collared geese was highest during the first 3 weeks and last 4 weeks of the season.

Study II: Factors Affecting Mortality Rates

Field work was limited to the capture and banding of locally produced Canada geese. Approximately 1,600 geese were banded during the spring of 1994 in southwestern Idaho. Habitat use areas were determined for fall, winter, and spring periods.

Study III: Identification of Subpopulations

This study was not active during this reporting period.

Meetings and Presentations

<u>Date</u>	<u>Name</u>	<u>Location</u>
July	Owyhee Co. Historical Soc.	Murphy
Jan	W.S. Ida. Chp.	Boise
	Ore. F&G, USFWS, RIII Mtg.	Nampa
May	Northern Wild. Sheep & Goat Council	Cranbrook, B.C.
	RIII Pers. Mtg.	Boise
	U of I/Oz Garton Sight. mod dev.	Moscow
April	Phys. Ass. & Firearms Trng.	Boise

Reports, Publications, Articles

- Bodie, W. L. 1993. Canada Goose Ecology In Southern Idaho. A Problem Analysis and Study Plan. Cmpt. Rpt. W-160-R-20. Idaho Department of Fish and Game. Boise. 48pp.
- Bodie, W. L. 1993. No One Knows Where The Wild Goose Goes. Idaho Wildlife. Idaho Department of Fish and Game. In Press.
- Bodie, W. L. 1994. A Standardized Technique for Bighorn Sheep Aerial Surveys. Proc. Northern Wild Sheep and Goat Council. Cranbrook, B. C. In Press.
- McCoy, M. W., Bodie, W. L., and Taylor, E. L. 1994. An Observation of Out of Season Breeding in California Bighorn Sheep. Northwest Science. In Press.

**PROGRESS REPORT
STATEWIDE WILDLIFE RESEARCH**

STATE: Idaho **PROJECT TITLE:** Statewide Wildlife Research
PROJECT NO.: W-160-R-21
SUBPROJECT: 38 **SUBPROJECT:** Elk/Livestock Impacts on
STUDY NO.: II Riparian Vegetation

PERIOD COVERED: July 1, 1993 to June 30, 1994

ABSTRACT

Elk and cattle forage use was estimated on the Lee Creek allotment using utilization transects and pellet group counts. Sixty-four transects were established in three cover types within four pastures in April and June. Transects were read June 28, July 7-17, August 6-16 and September 2 1993. Analysis of data collected during the June 28 and July sampling periods is not yet complete. The second year of field work began in April 1994.

**PROGRESS REPORT
STATEWIDE WILDLIFE RESEARCH**

STATE: Idaho **PROJECT TITLE:** Statewide Wildlife Research
PROJECT NO.: W-160-R-21
SUBPROJECT: 41 **SUBPROJECT:** Region 3 Mule Deer Habitat Use
STUDY: II

PERIOD COVERED: July 1, 1993 to June 30, 1994

ABSTRACT

Subproject 41. Region 3 Mule Deer Habitat Use.

Twenty-five mule deer (Odocoileus hemionus) were selected from a total of 50 captured and radio collared during winter of 1992. During the summer/fall study period, they were relocated 196 times from the ground and 296 times from the air. Detailed information about vegetation and site characteristics was recorded at each ground relocation. The process of completing random plots to determine habitat variable availabilities was initiated. Home ranges were computed for 11 males and 14 females. Average size computed with the minimum convex polygon method for males was 15.65 km² and for females was 15.15 km². Average size computed with the 95% harmonic mean method for males was 24.49 km² and for females was 21.30 km².

Meetings and Presentations:

None.

Reports, Publications, Articles:

Milner, G. B., and J. W. Unsworth. 1994. Region 3 mule deer habitat use. Job Progress Report, Project W-160-R-21. 17 pp.

**PROGRESS REPORT
STATEWIDE WILDLIFE RESEARCH**

STATE: Idaho **PROJECT TITLE:** Statewide Wildlife Research
PROJECT NO.: W-160-R-21
SUBPROJECT: 42 **SUBPROJECT:** Region 4 Mule Deer Habitat Use
STUDY: II

PERIOD COVERED: July 1, 1993 to June 30, 1994

ABSTRACT

Subproject 42. Region 4 Mule Deer Habitat Use.

Sixteen mule deer does were captured and radio collared during winter of 1992 and summer of 1993. During the summer/fall study period they were relocated a total of 346 times from the ground and 106 times aerially. Detailed information about vegetation and site characteristics has been recorded at 312 deer locations. The process of completing random plots to determine availability of habitat variables has been initiated; 114 were completed this field season. Home ranges were computed for 15 does. Average size computed with the minimum convex polygon method was 4.70 km² (S.D.=1.18) and computed with the 95% harmonic mean method was 3.86 km² (S.D.=1.15).

Meetings and Presentations:

None.

Reports, Publications, Articles:

Gray, C. J., and J. W. Unsworth. 1994. Region 4 mule deer habitat use. Job Progress Report, Project W-160-R-21. 16 pp.

**PROGRESS REPORT
STATEWIDE WILDLIFE RESEARCH**

STATE: Idaho **PROJECT TITLE:** Statewide Wildlife Research
PROJECT NO.: W-160-R-21
SUBPROJECT: 44 **SUBPROJECT:** Fall/Winter Mountain Quail Ecology
STUDY NO.: I

PERIOD COVERED: January 1, 1994 to June 30, 1994

ABSTRACT

Study plan implementation over the reporting period involved searching for and obtaining permission to set up trapping sites, trapping and radio-collaring birds on winter range, following their daily and seasonal movements, and locating nests. We trapped 28 mountain quail, and radio-collared 27. The birds' movements were monitored from mid-February through the end of the reporting period. As of 8 June 1994, over 110 radio-locations had been completed and 17 nests had been found. Between July and December 1994, we will collect information on nest success, movements, productivity and survival, and habitat use. In August we will trap coveys to collect information on survival and to radio-collar additional birds and renew radio-collars on recaptured birds.

PRESENTATIONS

Productivity and Population Characteristics The Wildlife Society meeting in Post Falls
of Mountain Quail in West-Central Idaho

Reproductive success of mountain quail AOU meeting in Missoula
in Idaho

PUBLICATIONS AND REPORTS

Heekin, P. E., K. P. Reese, and P. Zager. 1993. Current research on mountain quail in Idaho (abstract). Page 186 in Church, K. E., and T. V. Dailey (eds.) . Quail III: National Quail Symposium. Kansas Dep. Wildl. and Parks, Pratt.

Heekin, P. E., C. A. Vogel, and K. P. Reese. 1994. Uncovering the elusive habits of mountain quail in Idaho. Quail Unlimited Magazine 13:14-16.

Heekin, P. E., R. Guse, K. P. Reese, and P. Zager. 1993. Mountain quail ecology. Fed. Aid Wildl. Restor., Job Prog. Rep., Proj. W-160-R. Idaho Dep. Fish and Game, Boise.

Heekin, P. E., K. P. Reese, and P. Zager. 1994. Fall/winter mountain quail ecology. Fed. Aid Wildl. Restor., Job Prog. Rep., Proj. W-160-R. Idaho Dep. Fish and Game, Boise.

**PROGRESS REPORT
STATEWIDE WILDLIFE RESEARCH**

STATE: Idaho **PROJECT TITLE:** Statewide Wildlife Research
PROJECT NO.: W-160-R-21
SUBPROJECT: 45 **SUBPROJECT:** Winter Habitat Use Patterns
STUDY: I of Bighorn Sheep in Big Creek
JOB: 1

PERIOD COVERED: September 1, 1993 to June 30, 1994

Job 1: Develop study plan and begin field work.

ABSTRACT

Six bighorn ewes were captured in the Big Creek Drainage and fitted with radio collars. Bighorns were monitored from January to April. Fecal analyses has not been returned from Colorado State University; therefore, food habits are not known. Activity of sheep seems to decline during nocturnal hours; however, lack of a large data set precludes any definite conclusions as to their time spent moving-feeding, resting, and standing alert.

Locations and observations of sheep indicate they may select grassland and talus habitats during the winter. More locations will be needed, and delineations of habitats completed, before these data can be analyzed.

Submitted by:

John Beecham
Wildlife Game and Research Manager

Approved by:

IDAHO DEPARTMENT OF FISH AND GAME

Tom Reinecker, Chief
Bureau of Wildlife