MARCH, 1980

MULE DEER WORKSHOP

OREGON, U.S.A.

NOTES BY: Eldon Bruns
          Regional Wildlife Biologist

FISH AND WILDLIFE DIVISION

Red Deer, Alta.

ALBERTA MULE DEER REPORT

- Thanks to Paul and Norm

- Based on 1978 seasons

- Deer populations approximately 90,000 for the province

- Kill 12,355

- Success 32% of Active hunters

- Mule Deer licences 50,869 (24% success)

- Issued 1,130 ♀ authorizations in 1978
  Issued 2,282 ♀ authorizations in 1979

Over the past 3 years deer have been increasing steadily. The West-central part of the province may have a relatively high winter kill if weather conditions in March are average since we have deep snow there now.

Our Present Management Includes:

- ♂ seasons from 2 weeks on prairies to 3 months in Alpine area.

- ♀ authorizations $5.→70

- 3 antlered animal tag restriction

- Trophy zone (3 points, over 1" excluding brow tine).

- No Sunday hunting

- Incisor bar envelope return

- Mail out questionnaire (9,500 in 76) 50% response

- Generally managing below maximum kill.

COLORADO

- 20 ♂/100 post hunt

- 475,000 Mule deer prehunt - 400,000 in mid winter

- 50,000 kill

- 35% mortality in 78/79 winter

- 12,000   tags in 79 (either sex tags)

- 5 day seasons

- 7 ♂/100 in kill

- 150,000 hunters (mule deer)

- coal exploration is major threat

- paying damage on standing native forage

- separate and combined seasons (moose and elk)

    Mule Deer - Elk   - Mule deer and elk
    5 days   11 days   5-11 days
    Hunter takes choice

MONTANA - Dave Pate

1978

- Increasing population of Mule Deer

- 1150 either sex tags drawn

- some either sex W.M.U.'s for fist week of season

- 34,000 kill   1,100 ♀ kill

- 76,000 hunters

- 15 days/kill

- 5 week archery before rifle 7,000 killed @12% success

- questionnaires

- $7 A tag - $12 B tag - $6 Archery, $225   3 species

WASHINGTON - Don Zeigler

- lost 45-50% in 69-69

- near peak densities now

- 20-30 day seasons

- hunter density about same as in 50's

- paying damage claims - about $10,000 annual

- 230,000 hunters

- 25,000 kill

- 5-10 ♂/100 ♀ post season (productivity O.K.)
- 71 fawns/100   in late December
- orchards increasing on range

ARIZONA - Paul Webb

- all permit draws

- 77-76 - 42 fawns/100 ♀ December
  78-79 - 42 fawns/100 ♀ December

- 66,000 hunters (79) approximately 100,000 applicants

- stratified hunts 8 days and 16 days

- separate muzzle loaders - 1,000 tags

- separate archery seasons

- 1978 - 16% success - 8,850 kill

- 1979 - 20% success (more killed)   10,000 kill

- 11-40 ♂/100 ♀

UTAH - Grant Jense (Replace Rodney John)

- high mortality in May of some years

- 50-80% fawn winter mortality some years (1974)

- permits for ♀ 9,000 in 1979

- have a 5 day notice post hunt season, drawn with regular hunters

- conditional hunt for damage - 5 days to apply for draw.

- nearing capacity except in South - still declining after 11 years of buck
  seasons - likely due to coyotes.
    - 80-90 fawns/100 ♀ in the North
    - 50   fawns/100 ♀ in the South   ---------both December surveys

1978 - 11 day ♂ season

- 163,108 tags

- 63,108 tags
- 33% success
- 5,000 control permits - 56% success
- 1,800 muzzle loader - 11% success (after rifle season).
- 17,000 archers get separate tags in 1980
- use check stations
- 60% of kill is in first 3 days

1979   - 80 fawn/100 ♀
       20-40♂/100 ♀   pre hunt
       5-20 ♂/100 ♀   post hunt   - Causing concern but production O.K.

- want 77,000 acres of winter range purchased at going land rates ($82m)

NEW MEXICO - Larry Temple

- herds declining in 70's

- 3 seasons - 2 day - 40% of hunters
             5 days - 35% "   "
             7 days - 25% "   "

1978   - 97,000 Mule Deer hunters
      20,000 kill - 22% Success
      44 Fawns/100 ♀
      16 ♂/100 ♀
      289,000 Mule Deer population

- hunter chooses weapon (separate season) but can change prior to season opening

- rifle seasons are ♂ only

IDAHO - Jerry Thiessen

- 5-6 8 day seasons (26 average)

- some either sex

- Draw   on some units

1979   - 160,000 tags (includes White-tail) (approximately 70% Mule Deer)
      6,000 muzzle loader
      11,000 archer

1978   - 33,000 kill (mule deer) 27% ♀
      30% success

- want 75% of kill to be ♂

- muzzle - 360 kill

1978   - archers - 630 kill

- 243,000 + Mule Deer in 1980

- Use 20 check stations 4,000 deer/year (jaw, weights- fawns 47-50 lbs, declin
                                  with population). ratios, success,
                                  days/hunt)

- classify 10,000/yr
  8,000 air
  2,000 ground   - 1 man /region does it!

- using One Pop   Electronic Data Processing (not overly impressive)

- telephone questionnaire

- little range work

- 19-55 $\male$/100 $\female$ post hunts

- 40-100 Fawns/100 $\female$

OREGON

- 78 fawns/100 $\female$ fall

- 28 fawns/100 adults, spring 1979 (march and April green-up)

- 11/mi. of survey route, spring

- 17$\male$/100 $\female$

- 78 kill was 39,000

- 7-12 day $\male$ season

- some draws for quality hunting

- 30,000 $\female$ tags, bonus

- have tag sale deadline (Midnight of day before season), increased sales due to speculators

- 25-30% fawn survival over average winter

Dr. Jack Thomas, U.S.F.S. Range and Wildlife Habitat Laboratory - "Accounting for Mule Deer Habitat in the Managed Forests of the Blue Mountains of Oregon".

- Book - Wildlife Habitats in Managed Forests, the Blue Mtns. of Oregon and Washington. U.S. Dept. of Agr. F.S. Sept. 1979. Agr. Handbook No. 553, U.S. Government Printing Office.

- multi agency effort

- use "habitat relationships" to keep "Willy Wildlife" and "Freddy Forester" happy

Deer and Elk

- optimal is max. - use of max. space
- 40% cover & 60 % forage on Blue Mountain summer range - winter not much lef[

- hiding cover = capability to cover 90% of elk at 200' or less

- thermal cover = conifers 40+ feet with average crown closure over 75%

- good use of created openings after 3 - 4 years.

- deer and elk use edge plus 600' of open or cover

- 16-40 acres best hiding cover
  50-80 acres best therman cover

- cover stands should be 600 to 1200' apart

- up to 300% increase in elk use of 90% cover area if cover is converted from cover to forage.

- Habitat requirements must be defined and stated clearly in terms of forage, cover ratios on each land type

- ratios can be satisfied with many kinds of cut cycles

NOTE: Timber and wildlife decisions must be made simultaneously. .
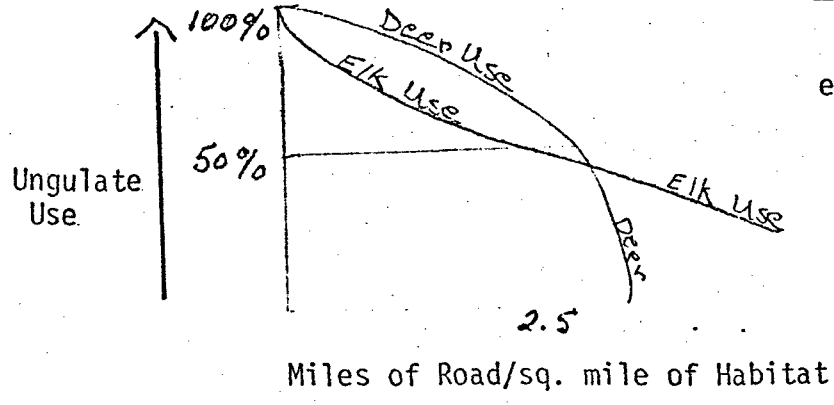
e.g. 2.5 mi. of road is open tra-velled and hunted.
Max. before ungulate use drop[below 50%

Miles of Road/sq. mile of Habitat

<u>Don Leckenby, Oregon Dept. of Fish and Wildlife</u> - "Mule Deer Habitat in Relationships for Managed Rangelands of the Great Basins".

- preferred grass stands had highest winter use 2X (preference index)

- Basal Metabolic Rate = 2,000/day
  32^0 - 65^0 F is optimal range temperature - range for minimal energy consumption.

- one tree is thermal cover only if there is no wind

- intake is directly related to digestibility
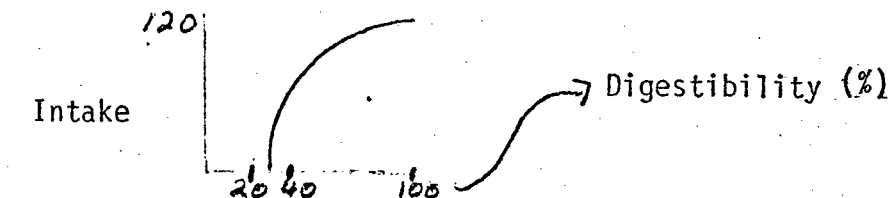
based on biophysical land types to limit boundaries and random boundary changes.

<u>Jim Lipscomb, Colorado Division of Wildlife</u> - "Colorado's Program in Developing Timber Management Guidelines".

- at least 1/3 of logging is to be for wildlife habitat enhancement

- 30 biologist involved

- still a conceptional model

- will likely increase timber cut since much of Colorado timber is un-merchanable

<u>Dick Pedersen, Oregon Dept. of Fish and Wildlife</u> - "The Use of Wildlife Relationships to Achieve Goals of Federal Land Management Laws".

- wildlife is seldom a negotiable item, should have veto power on some issues as it does in some states, some forestry laws require Fish and Wildlife input.

State's report on Development and Application of Deer Habitat Relationships and Guidelines.

IDAHO

- Assigned 2 people to F.S. planning for 18 month (Hove Personnel Transfer Act).

- have drawn up guidelines for some forests

- plans cover 10-15,000 acres

    **Chuck Trainer, Oregon - Kydex collars for deer exceptionally good

MEW MEXICO

- 1 man assigned to Forest Service plan (Split Wages)

UTAH

- written agreements with Forest Service
- little commercial timber

ARIZONA

_ similiar to Utah

WASHINGTON

- have written a plan for one forest

- now refer to one man

MONTANA

- Mostly for elk (9 year study)

Dan Eastman, Oregon Dept. of Fish and Wildlife "Expanding Census in Management Ojectives Planning for Deer".

- in legal sense "most probable" - is enough for expert opinion

    1) Spring Census - use on elk as well, in March and April (little winter mortality in Oregon)   Not as good in heavy cover areas (Blacktail).

        - done when Poa secunda is showing green

        - Horse - fixed wing - 4 x 4

        - Line Transect

- same observers

- track on winter range

- statistically weak

- late March or April

- mild winters throw the data

- 3,500 mi (30,000 Head)

- classify fawns/100 adults

- 10 - 30 years data

- check vegetation at same time (visual) is O.K.

- express as deer/mi. - does not accurately reflect absolute numbers.

- 12,000 head/year

* spring fawn ratio is best index of next falls' herd! 35-40- is maintenance level (management ojectives).

2) Fall Herd Composition

- Nov. - Dec.

- 17-20,000 head

- have minimum ♂ escapement standards - 12 is mean

	Basic Data				April Numbers				
Year	Jan. (Prior) ♂	♀	Apr. (prior) Deer/mi. Fawn/100		Total Deer	Yrlgs.	♂	♀	
1969	21		(6.8)	32	(85)	21	11	53	
—									
—									
Mgmt Objective (X)	15		(8)	40	100	29	9	(62)	
1977	20		9.8	53	123	43	13	67	
1979	21		11.8 (6.6)	30	(95)	22	13	60	

Poor Production yr.

$\frac{6.8}{8} \times 100$

Left Over (100- yrlgs. ♂)

Good Prod. yr.

Hard Hard Winter

Predicted value

DEER POPULATION INDEX

Devils Garden/Hole-In-Ground
North Paulina (area)   Behrens-He (Biologi)

YEAR	BASIC DATA JAN. Per 100 Does Bucks	Fawns	APR. Deer Per Mile	Fawns Per 100 Ad.	APRIL - Number of Total* Deer	Ylgs.	Bucks	Does	Fawns Per 100 Does	SEPTEMBER - Number Bucks	Does	Fawns	Total Deer
1960	AVG. DATA BELOW												
1961	NOT USED												
1962	EXCEPT FOR FAWN : DOE												
1963	IN SEPTEMBER												
1964	23	71	4.5	53									
1965	24	70	4.7	44									
1966	28	50	4.1	34									
1967	25	83	5.5	61									
1968	28	64	5.0	36									
1969	22	53	4.6	32	8,330	2,136	1,103	5,091	64	2,171	6,159	3,942	12,27:
1970	15	64	5.8	47	11,018	3,503	983	6,532	59	3,874	7,144	4,215	15,233
1971	20	59	4.7	39	8,916	2,504	1,038	5,374	50	2,289	6,627	3314	12,230
1972	18	50	4.2	34	7,658	1,949	842	4,867	75	1,816	5,842	4,382	12,040
1973	15	75	4.6	45	8,252	2,588	688	4,976	58	1,981	6,271	3,637	11,889
1974	17	58	3.8	31	6,998	1,617	767	4,614	49	1,525	5,423	2,657	9,655
1975	16	49	3.8	31	6,862	1,614	735	4,513	70	1,542	5,320	3,724	10,586
1976	19	70	4.5	50	8,198	2,721	863	4,614	70	2,223	5,975	4,183	12,381
Mgt. Obj. Levels	Area Sept. Pop. = Key Area Apr. Pop. =				10,000 15,000	2,880 4,290	929 1,392	6,211 9,318	79 70	2,359 3,537	7,641 11,463		18,541 23,024
	15	29	—	100	100	29	9	62	70	73	77		150
1977	20	70	6.1	52	10,566	3,636	1,146	5,784	59	2,963	2,603	4,486	15,052
1978	25	59	5.0	33	8,916	2,211	1,322	5,383	55	2,427	6,489	3,569	12,485
1979	21	55	7.0 (4.8)	29	8,310	1,868	1,121	5,321	76	2,055	6,255	4,850	13,160
1980	23	76											
1981													
1982													
1983													
1984													
1985													

- Fawns/100 Adults is highly correlated with population dynamics

- Split April fawns 50/50 for sexes - that will be available in September

- check annual   kill with "guessed" absolute population (prior to hunt)
  σ kill is 10% of population

Test Model for

- Adequate overtime (10 years) for reported buck kill

- Buck escapement in general reacts to level of taking

- Population density on seasonal ranges is acceptable

- Is model "Bio-Logical"

- History will repeat itself and this gives biological tool to predict happenings

- Some transient populations (winter in different area from harvest area) so beware of absolute values for kill etc.

- Can be used to determine recommended hunter densities (I.M. P. areas)

- Fall to Dec. F/100 $\female$ ratios can be corrected to try and provide next Sept. population.

- Not necessary to spot light to get adequate sample size

- Montana have 70 $\male$/30 $\female$ ratio in fall fawns

States report on "Techniques Used to Determine Annual Antlerless Harvest Quotas"

J. Lipscomb - Colorado

- tend to manage on Zone basis (DAU=Data analysis unit) rather than W.M.U. (Include both summer and winter range of herd) but, still issue permits on W.M.U. basis

- manage to achieve a definite post hunt population (the numbers going onto the winter range)

Symbols for Formulas

B_1 = bucks from previous year (year 1)

B_2 = bucks from second year

D_1 = does from previous year (year 1)

D_2 = does from second year

BK = Buck Kill

DK = Doe Kill

YB = Yearling bucks

YD = Yearling does

F_1 = Fawns from previous year

F_2 = Fawns from second year

F_2^1 = Fawns from previous year in post hunt count

FS = Fawn survival
BS = Buck survival

$$B_2 = B_1 - BK \qquad (B_2 = \text{Posthunt}) \quad (B_1 = \text{Prehunt})$$

$$\frac{B_2}{D_2} \times D_2 = \frac{B_1}{D_1} - BK \qquad (D_1 = \text{Unknowns})$$

$$\frac{B_2}{D_2} \times D_2 = \frac{B_1}{D_1} (D_2 + DK) - BK$$

$$\frac{B_2}{D_2} \times D_2 = \frac{B_1}{D_1} D_2 + \frac{B_1}{D_1} DK - BK$$

$$D_2 = \frac{\dfrac{B_1}{D_1} DK - BK}{(B_2/D_2 - B_1/D_1)}$$

TO DETERMINE POST HUNT POPULTAIONS WITHOUT KNOWING WHAT % OF POPULATION THE KILL IS

Using ratios of yearlings in kill (may not be 50/50)

$$\frac{YB}{YD} = SR = 1 \text{ if } 50/50$$

$$YB = YD$$

$$\frac{Y_1 B_1}{B_1} \quad B_1 = \frac{YD_1}{D_1} D_1$$

$$\frac{Y_1 B_1}{B_1} (B_2 + BK) = \frac{YD_1}{D_1} (D_2 + DK)$$

$$\frac{YB_1}{B1} \left(\frac{B_2}{D_2} \times D_2 + BK\right) = \frac{YD_1}{D 1} (D_2 + DK)$$

Solve for D_2 and use that to arrive at total population post-hunt.

To determine natural mortality previous year's fawn population post hunt.

$$\frac{F_2^1 \times FS}{2} = YB_1$$

$$\frac{F^1}{2} \times FS = \frac{YB_1}{B_1} (B_1)$$

$$FS = \frac{\dfrac{YB_1}{B1} (B_2 + BK)}{\cdots F^1/2}$$

♂ survival can be found by: (♀ is same way)

$$B_2^1 \times BS = B_1 - YB_1$$

$$B_2^1 \times BS = B_1 - \frac{YB_1}{B_1} B_1$$

$$BS = \frac{B_1 - \dfrac{YB_1}{B_1} B_1}{B_2^1}$$

- harvest figures are used as the most reliable data source

- use random questionnaires (several) 10-100% samples

- 10-15% on Mule Deer is not high enough for some W.M.U's

- fawn mortality runs very high 40-50%

Idaho is comparable to Alberta

New Mexico comparable to Alberta

UTAH

- use concensus of field staff and trend data

- use tag only to lower impact of hunters on landowners otherwise they spend several days age hunting when ♀ kill could be done in 3 hours.

- mandatory reporting for post season dame age hunts only

ARIZONA
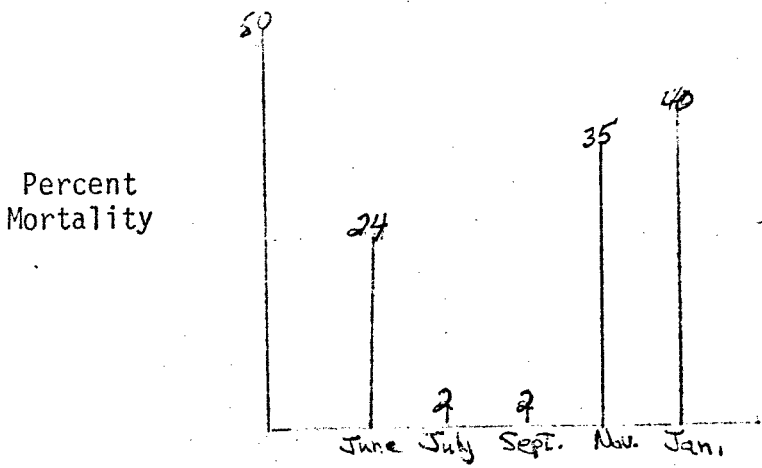
- ♂ only for last 4 years.

MONTANA

- sample 41%

WASHINGTON

- think they should kill 60 ♀/100 ♂ to stabilize herd

Jim Lemos, Oregon Dept. of Fish and Wildlife - "Steens report on "Techniques Uses to Determine Annual Antlerless Harvest Quotas".

- 50F/100 ♀ in December was too low for desires

Fawns/100 ♀

150

133

100

88

50

50

27

80% loss of fawns

June   Aug.   Sept.   March

Percent
Mortality
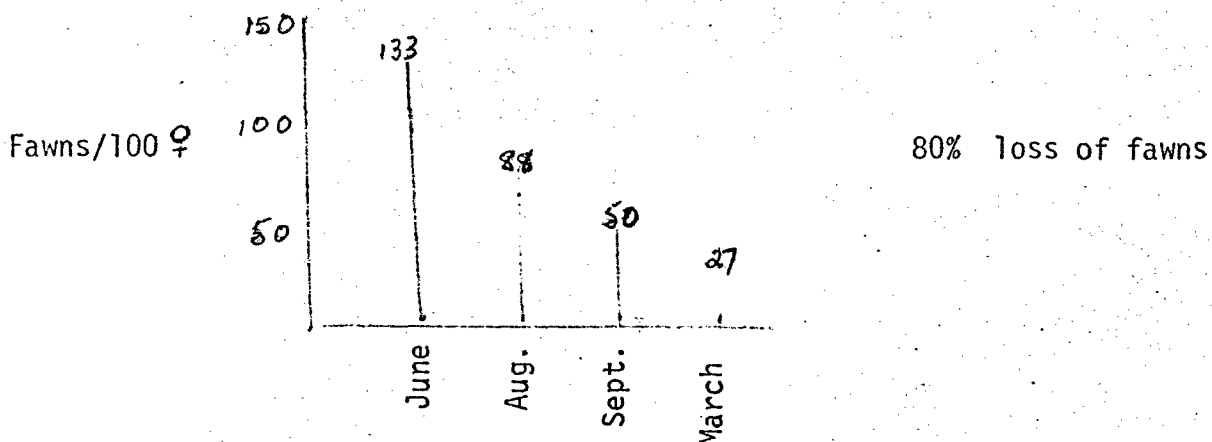
- fetal rate O.K. 1.33/ ♀

- cover O.K.   60% good fawn cover

- nutrition only 9% of mortality

- disease only 11% of mortality

- predators (coyotes) 60% of mortality

- removed 536 coyotes from 76 sq. miles in 4 years - this did reduce
  densities.

- 1975-79 cost $31.41/coyote for removal

- Fawn mortality was reduced from 54% to 24%

- 28% fawn mortality in removal area and 52% on control area

- removal produced 123 more fawns for 1979 fawn crop

- uses F/♀ ratios as control for effects of telemetry gear on survival,
  none seen.

- did not monitor buffer species well

- Mule Deer were well below carrying capacity

- had 4 point trophy hunting only

- 1,300 Mule Deer on study area

Idaho Research

Phone survey

- 13¢/min. - for calls

- contacted 5% of hunters

<u>Research</u> - monitoring phosphate mining effects on each species

      - 5 Mule Deer monitored on 24 hour basis

      - pits can delay migration of Mule Deer up to a month

      - in 3rd year of 5 year study

Don Leckenby, Oregon Dept. of Fish and Wildlife - Habitat Photo Mapping, Oreg.

      - each digital unit equals 1.1 acres on ground

      - 1 image can cover 150 mi. on side (computor can count areas)

      - must know reflective values on bands you want.

      - must know phenological reflective values.

      - better not to try and map vegetation communities when saving habitat because of phenology

      - can call up acres of each habitat type by adminsitrative unit

      - use U.T.M. coordinates

      - gives good quantitative record keeping system for all agencies that can be updated every few years and used to monitor progress and management efforts

      - 80% accuracy of habitat recognition

      - recall blocks and throw out - or add excess areas for irregular shapes

      - $10,000/100,000 acres when starting from scratch

<u>Arizona</u> - Habitat mapping by Landsat is in early planning stages.

<u>Montana</u>

      - presently researching mountains and breaks - mule deer herds to determine population dynamics.

      - mountain herds only have 13% F recruitment to population and 40% of are 6+ years old.

      - on Missouri Breaks recruits are 30% and ♀s are under 6 years.

      - if summer forage production is good, fawn survival in tough winters is good.

      - home ranges in mountains are 1/3 as large as in breaks because "habitat fill" is difficult or mixture of habitat types is greater.

      - have found alternate year breeding in Swan Valley, N.W., where herd is considered stable with habitat. This is seen as early postpartun fawn

mortality because ♀ needs a year to recover from environmental stress
of previous years.

Alberta - No Research

Colorada

- Quad census technique ready to use for management

- trying to find feed preference indexes which can be used for miti-
  gation etc.

- starting some bio-energetics studies

- starting carrying capacity models

- starting estimates of energy consumption due to harassment

- have manual that lists next 10 years research projects

Arizona - Clay McCulloch

- 4 Mule Deer studies

1) Using weather data too predict population dynamics
   - H_2O is biggest factor
   - 10 years weather data now writing Electronic Data Processing

2) Using pellet counts for census
   - most where aspen occurs
   - in E.D.P. now

3) Telemetry to determine mortality after 6 months old
   - 73 collared
     losses - 5 lion, 2 coyote, 1 old age, 2 hunting
   - getting movement data

4) Fawn survival on desert ranges relative to cattle stocking
   - stymied by enough H_2O in last 3 years

Utah

- game deer range utilization studies

- fawn survival on some herds is due to condition of summer ranges

- Potassium and phosphorus varied on ranges

- digestability studies showed Tridentata to be very high in pre-
  ference
- feeding studies based on innoculum from various natural diets and
  in vetro studies all innoculi digested hay equally well

- trapping in winter and using laborotomies to determine mid
  pregnancy rates, also using doppler and ultra scan to trace

productivity problems for several years. --
- some malnutrition
- some bear
- some coyote
- some eagle
- some cougar
- some unknown

- serology to monitor communicable diseases that could be transmitted to man

- some tuleremia, Q-fever, brucellosis, encephalitis

- cougar study to determine their impact on deer and elk

- landsat to map snow depths and correlate with winter losses -(Univ. Prof. working on it, not doing much lately?)

- trying different forage species for reclamation

- remote censusing continuing
    - can use negative film or digital readout computor on board aircraft
    - need $75,000/year for next 3 years to develope prototype

New Mexico

- 10 study areas to determine reasons for poor recruitment

- monitoring ungulates and predator (scent post transects) and alternate prey

- collaring adults

- vaginal implants

- fawn telemetry

- use drive net like Arizona and Montana (1500' long, 8" mesh, 8' high)

- hope to have Electronic Data Processing for state

California - Bill Longhurst

- gathered data in Nevada

- compared cattle and sheep allotments

- used chopper classifications

- 3 years studied now
    - fawn ratios are a little lower on cattle ranges than sheep ranges even though sheep have higher diet overlap with mule deer

    - different grazing regime may favour mule deer more

- think cattle improved range for mule deer but sheep are producing more successional species because of herding efforts made to keep sheep shifting over areas other than solely riparian zones

- suspect very early neonatal mortality is most important

- may be due to better coyote control on sheep allotments

BUSINESS

- Washington will host next workshop

- Mule Deer to continue every second year as now

- Mule Deer book due in next 3-4 months

- Dr. Kistner of Oregon developing body condition index handbook due this summer

- Colorado developing (on Colorado) disease manual -- due this summer

Wildlife Habitats in Managed Forests
the Blue Mountains of Oregon and Washington
Jack Ward Thomas, technical editor
Agriculture Handbook No. 553
512 pages, illustrated (color)

The U.S. Department of Agriculture, Forest Service, in cooperation with the Wildlife Management Institute, is proud to present this 512-page book—the first comprehensive wildlife planning tool for forestry. With the information provided, forest managers, wildlife biologists, and other specialists can work together to assure the existence of most, if not all, important wildlife habitats in managed forests. Although prepared for the National Forests in the Blue Mountains of Oregon and Washington, the management system is applicable to all managed forests.

Forest managers are under increasing pressure to account for wildlife in their management activities. That means all wildlife—not just game species or those classified as threatened or endangered. This book offers a way to do that—by describing wildlife habitats in such a way that they can be considered simultaneously with timber management planning. Habitat is considered the key to maintaining wildlife.

Management considerations are given for the various habitats common in forests:
- plant communities and successional stages
- special habitats—riparian zones, edges, snags, and dead and down woody material
- unique habitats—cliffs, caves, and talus
- featured species—deer and elk

Silvicultural options are also discussed as are the impacts of wildlife habitat management on timber production.
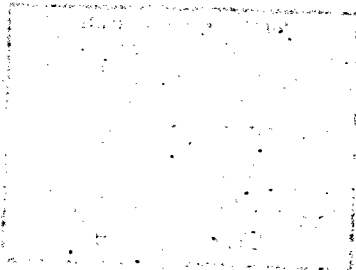
AGENDA for the 1980 Mule Deer Workshop held March 5, 6, 7, 1980 at Bend, Oregon

Wednesday morning, March 5

Introductions
Individual States' Mule Deer Status Report

Wednesday afternoon, March 5

The Blue Mountain Wildlife/Timber Management Relationships in Oregon.
Extension of the Blue Mt. Relationships to Sage Brush Ranges in Oregon.
Colorado's Program in Developing Timber Management Guidelines.
Application of Relationships in Oregon, and Federal Policies and Laws
    Used in Application.
Reports from each State on their Experiences in Developing and Applying
    Timber Management Guidelines.

Thursday morning, March 6

Developing and Applying Management Objectives in Oregon.
Application of Management Objectives in Colorado for Determining Antlerless
    Harvest Quotas.
Report from each State on Techniques Used to Determine Annual Antlerless
    Harvest Levels.

Thursday afternoon, March 6

Individual States' Review of Recently Completed, Current, or Anticipated
    Mule Deer Research Studies.
Vegetative Mapping Using High Level Photography - Presentation by Oregon,
    Washington, Arizona.
Final Report on the Steens Mt. Mule Deer Study.
Workshop Business Meeting

Friday morning, March 7

Field trip to the Silver Lake Winter Range
    Examine water guzzlers
        winter range road management area
    Ground proofing vegetative mapping

SUMMARY OF PRESENTATIONS GIVEN AT THE 8TH ANNUAL MULE DEER WORKSHOP -
     BEND, OREGON, March 5-7, 1980.

David F. Pac

There were nine western states and Canadian provinces that had representatives
in attendance. These included Oregon, Colorado, Washington, Montana, Idaho,
Utah, Arizona, New Mexico and Alberta. Representatives of each state or
province gave a status report of mule deer population trends and harvest
during the last two years.

Oregon

Mule deer populations recovered substantially during 1975-77 from the low
levels experienced in the early 1970's. During 1978-79, severe winter
conditions caused a general stabilization in population levels over most
areas.

Mule deer management along the east side of the Continental Divide will be
very similar to elk management strategies within a year or two. Split seasons
are presently being used to relieve congestion and hunting pressure. Buck
mule deer (2 pt. minimum) can be hunted during a 5 day 1st period hunt,
followed by a 9 day 2nd period hunt. Post season male:female ratios declined
from 18-25 males:100 females during either-sex hunting in the early 1970's
to 6-10 males:100 females during recent years of bucks only seasons. To
relieve pressure on mule deer males, separate tags are now issued for black-
tailed and mule deer and the hunter has to choose one or the other and
purchase it before the season. In addition, the mule deer season on the
east side of the Divide is shorter than black-tail seasons on the west side.
Management objectives are designed to achieve minimum buck escapement levels.

Harvest was estimated at 39,000 bucks in 1979. In 1978, 29,000 antlerless
permits were issued and 18,000 antlerless animals were harvested.

Most Oregon mule deer populations are quite vulnerable to harvest because so
much of their habitat has been heavily roaded during extensive logging.
The result is greater restriction of the hunting opportunity as pressure
increases. Oregon may soon restrict the hunter to pursue either elk or deer
but not both in the same season. Many areas already have stringent antler
requirements of 3 or 4 points or better. Bow hunters cannot hunt with a
rifle in the same season and vice versa. The number of hunters may soon
be limited to quotas set for each management unit.

Oregon game managers have noticed a decreasing landowner tolerance for
wildlife and wildlife-associated problems as the value of other resources
increases.

Colorado

During 1976-78, mule deer population trends were variable. Many areas were
stable to slightly increasing while other localities showed substantial
increases. The winter of 1978-79 could be considered a disaster. The impact
was under-estimated until 1979 hunting statistics began to be analyzed. Some
populations probably experienced a 45% decline.

In 1977-79, the deer season was 5 days, bucks only followed by an 11 day elk season and then a combined season (9 days?) where the end of elk season over-lapped with another deer season. During 1979, 12,000 either sex mule deer permits were issued which was substantially less than other years. Total harvest in 1979 was estimated at 50,000. Deer hunters numbered approximately 150,000.

Colorado has specific biological harvest objectives in each hunting unit and the seasons are designed to accomplish the objectives.

Colorado pays game damage on native forage. A person who expects damage to native forage must have his range assessed before and after the damage occurs. The amount of livestock forage used by big game is then determined in AUM's using SCS range site evaluations.

Colorado views energy development on prime mule deer areas as one of the most important future problems.

Washington

During 1968-69 winter, 40-50% of mule deer populations were lost. Rapid build-up of numbers occurred after 1973. At the present time, herds are peaking in eastern Washington for the amount of winter range that is left.

They have a 25-30 day season, bucks only. The number of mule deer hunters (220-240,000) hasn't changed much since the early 1950's. Restrictions have remained about the same. The harvest is about 25,000 mule deer. About 8-10,000 antlerless permits are issued in eastern Washington. Post season adult ratios are about 5-10 males:100 females.

Arizona

Populations are generally stable with some increases in particular areas. Deer hunters are controlled entirely by permit and management unit. The number of bucks only deer permits issued during 1977-79 have ranged from 66,000 to 72,000. Harvest has ranged from 8,850-10,350. Hunter success has averaged 16 percent.

Permit hunts are stratified by hunting unit into 8 and 16 day periods.

Utah

Mule deer populations have been stable to declining during the past two years over most areas of the state. Problems in recovery are attributed to increases in predators, late springs, droughts, and the very severe winter of 1978-79. Since 1975, regulations have become increasingly more restrictive with declining populations. During 1978 and 1979, the bucks only season lasted for 11 days. Antlerless permits numbered 5,000 in 1978 and 9,000 in 1979. The 1978 harvest was 63,500 bucks and 3,000 females. Hunter success was 33 percent. Buck:doe ratioes have averaged about 20-40:100 preseason and 5-20:100 post season.

Utah owns or leases 225,000 acres of critical mule deer winter range and estimates that 577,000 total acres are needed to stabilize mule deer herds.

New Mexico

Mule deer numbers have generally declined through the 1970's as a result of hunting pressure, habitat loss, and poaching. Statewide populations are estimated at around 289,000 animals.

Stratified bucks only seasons have been used since 1976. The first hunt is 2 days long and accommodates 40 percent of the hunters. Thirty-five percent of the hunters select the second 5 day hunt, while only 25 percent hunt during the last 7 day period. The deer hunter must choose one of the time periods before buying a license. The deer hunter is also restricted to the use of only one type of weapon during a particular hunting season.

License sales have declined with the use of stratified hunts from 160,000 to 97,000 hunters. The statewide harvest is 19,000 with a 22 percent hunter success.

Idaho

Mule deer populations are generally increasing over most of their range since the low population levels experienced in the mid-1970's. Deer seasons vary from 68 days in roadless areas to 5 days in some localities. Most of the state has a 26 day mule deer season. Restrictions range from bucks only to general either sex. The mule deer season is separated from the elk season in some areas. The 1979 harvest is estimated around 36,000. About 73% of the harvest are males and the remainder are females. Hunter success averages 30 percent.

Alberta

Mule deer populations have achieved relatively high densities on most areas of the province. Seasons range from 2 weeks on the prairie to 3 months on the high alpine areas. Prairie areas are bucks only with 3 points or better. Alberta is trying to pass a compulsory registration of mule deer kills. This stipulation already applies to all other big game species.

Gas and oil development poses a major potential problem for mule deer populations in Alberta.

The methods each state employs to monitor annual harvest levels were also discussed. Colorado, Washington, Alberta, and Montana use mail-out questionnaires to monitor harvest. All other states simply use trend data from check stations, etc.

Colorado sends a questionnaire to 10-15% of the general deer and elk tag holders. A 90% return is usually obtained. They spend $300,000 a year on their harvest survey. Washington sends a questionnaire to 10% of the big game tag holders and receives about a 65% return. Alberta mails a questionnaire to around 9,500 deer hunters and receives a 50% response.

Reports from various states on current and anticipated mule deer research were vague. I will only reiterate some of the highlights.

A detailed report was given on the Steens Mt. mule deer study 1970-80 which is in the final stages of completion. The main objective was to determine the causes for the significant reduction in early winter fawn:female ratios. The primary result was the documentation of significant mortality of fawns during the first 45 days of life. Mortality was low during the August-October period, followed by increased mortality during the November-March period. Fawn mortality was approximately 80% during the June-March period. Coyote predation accounted for about 60% of the losses.

Coyotes were controlled from 1976-79. A total of 536 coyotes were removed in 140.5 hours of helicopter time. After pelts were sold, the net cost of control work was $15.53/coyote. Mortality of fawns attributable to coyote predation was reduced to 28 percent after the control work. It was estimated that in 1979, there was a net gain of 9.2 fawns per 100 does or 123 fawns for 1333 does in the population on the removal area.

New research studies on mule deer in Oregon are all geared to adapting the Blue Mts. elk-habitat relationships to mule deer on rangeland ecosystems. Most of this work centers on one magic formula of 60% foraging area and 40% cover.

In Idaho, a telephone big game harvest survey is being developed which may eliminate some of the problems experienced with mail-out surveys. All other deer research is referred to as "short-term crisis research" involving mule deer relationships to phosphate mining.

Research in New Mexico is primarily focusing on understanding the nature and extent of natural mortality factors on mule deer populations.

Arizona is using Landsat mapping techniques to obtain a better idea of mule deer cover and forage relationships.

Washington gave a brief account of results of the Okanogan mule deer study.

My general impression of the workshop was that the results of the Jack Ward Thomas study on habitat relationships of elk in the Blue Mts. of Oregon are now being applied to mule deer in western rangeland ecosystems in eastern Oregon. Some other states seem to be following the leader. The same relationship of 60% foraging areas and 40% cover is, once again, the magic formula. This philosophy of "habitat management" seems to be a way for land managers and wildlife managers to finally agree on something. The idea of "agreement" between these two forces is attractive. I hope the ultimate consequence of this "Great Compromise" is as beneficial to the future of the wildlife resource as it is for the public image-building process of the state and federal agencies involved with it at this time.

I find it difficult to believe that wise decisions on the management (grazing, logging, etc.) of deer and elk habitat can be made, without first having a good understanding of population dynamics and its relation to habitat. We are the only state taking this approach on an intensive long-term basis. Somehow, I think we have the horse before the cart. It is a lonely road we are traveling, so hopefully it is the right one.