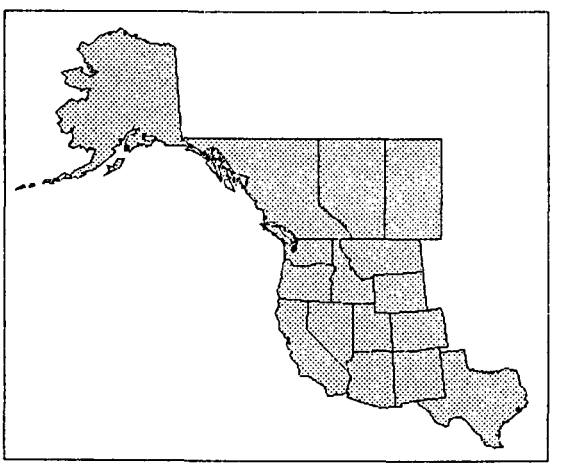
THE
WESTERN STATES AND PROVINCES
DEER WORKSHOP

DEER STATUS REPORTS



1993 MEETING

AUGUST 10 - 13

HEFFELFINGER

WESTERN STATES AND PROVINCES DEER WORKSHOP

FINAL NOTICE

August 10 - 13, 1993

Hosted by

British Columbia Environment
British Columbia Forest Service

Tigh-Na-Mara Resort Hotel
Parksville, Vancouver Island
British Columbia
Canada

Sanctioned by The Western Association of Fish and Wildlife Agencies

WESTERN STATES AND PROVINCES DEER WORKSHOP

SPONSORS

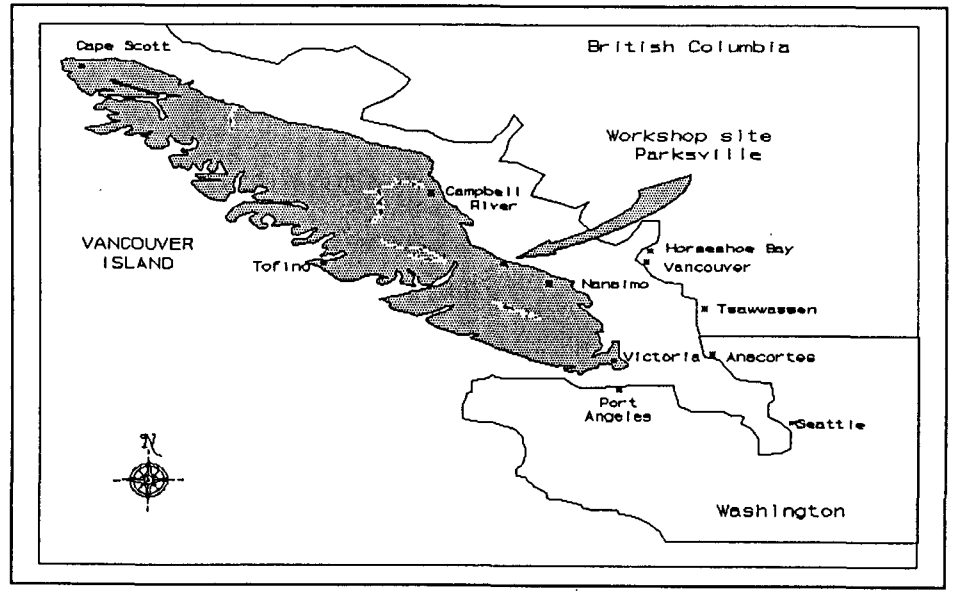
British Columbia Environment
British Columbia Forest Service
British Columbia Wildlife Federation

ORGANIZING COMMITTEE

Don Doyle
BC Environment

Scott McNay
BC Forest Service

Joan Voller
BC Forest Service



WORKSHOP PACKAGE

The workshop registration fee will be a flat rate of $305 CAN per person and is based on a $35 workshop registration fee and $270 per person for lodging [based on double occupancy] and meals. Take a moment to browse through this booklet and familiarize yourself with the package we have put together:

- **page 3** provides a general introduction to the workshop;
- **pages 4 - 5** provide the detailed agenda for presentation of technical talks and discussion;
- **page 6** provides a few tempting ideas for the workshop participant who plans to blend in a bit of vacation;
- **page 7** provides information on alternative ideas for travel and accommodation; and
- a **centre page** pull-out is provided for completing your workshop registration.

Included in the registration fee is:

- accommodation for Tuesday, Wednesday, and Thursday night at the Tigh-Na-Mara resort hotel;
- a reception and supper on the registration night, Tuesday;
- all meals for the workshop days Wednesday and Thursday, and breakfast on Friday morning;
- a special after dinner speaker on Wednesday night;
- a special evening on Thursday featuring the O.C. Wallmo award presentation and a salmon Barbecue hosted by the BC Wildlife Federation;
- a wildlife tour in the local area on Friday morning;

and, of course,

- a taste of Vancouver Island's east coast; and a chance to take in many of the activities that the local area has to offer (see **page 6**).

WE MUST KNOW BY MAY 14th IF YOU PLAN TO ATTEND THE WORKSHOP. Unfortunately we must impose the May 14th deadline to make sure we can accommodate you at Tigh-Na-Mara. Participants who plan to register after May 14th will be required to make alternative accommodation arrangements (see **page 7**) and pay a workshop registration fee of $35 CAN plus $100 CAN for meals.

WESTERN STATES AND PROVINCES
DEER WORKSHOP

WELCOME

The **"WESTERN DEER WORKSHOP"** is an opportunity for informal discussions and exchange of information concerning problems and priorities in deer management. The workshop is held bi-annually as a sanctioned function of the Western Association of Fish and Wildlife Agencies and we are proud to host the next workshop at the Tigh-Na-Mara Resort hotel in Parksville, British Columbia. We have lined up an interesting and exciting two days of technical presentations, including sessions on habitat, populations, and co-management of deer with native people. Also planned is a special night featuring the presentation of the O.C. Wallmo award at a salmon barbecue hosted by the BC Wildlife Federation.

Tuesday, August 10

Reception

15:00-18:00	•	**Registration & Check-in**
17:00-18:00	•	**Social Hour**
18:00-19:00	•	**Dinner**
19:30-20:30	•	**Business Meeting**

Poster Session

Posters will be set-up Tuesday evening (or ASAP) and will be attended during coffee breaks on Wednesday and Thursday.

Comparison of fecal and rumen analyses for estimating summer deer diet in southeast Alaska
Stephen Lewis, Alaska Cooperative Fish and Wildlife Research Unit, Fairbanks, AK

The natal site selection behaviours of ten black-tailed deer
Jeff Morgan, University of British Columbia, Vancouver, BC

O.C. Wallmo Award

The Western Deer Group and the family of the late Dr. O.C. Wallmo have provided for the 4th O.C. Wallmo award for the "recognition and commendation of outstanding contributions to knowledge and improved management of mule and black-tailed deer". The award is presented biennially in conjunction with the Western States and Provinces Deer Workshop.

WESTERN STATES AND PROVINCES
DEER WORKSHOP

Wednesday, August 11

07:00-08:15 • Breakfast and Late Registration
08:15-08:30 • Welcome

Session 1: Inventory & Populations
Leader: Don Eastman, Manager - Research and Development, BC Environment

08:30-09:00 • **A comparison of inventory techniques**
Gary White, Colorado State University, Ft. Collins, CO
09:00-09:30 • **Mule deer sightability in the Kamloops region of BC**
Fred Harper, BC Environment, Kamloops, BC
09:30-10:00 • **Genetic variation and effective population size: Effects of different management strategies on white-tailed deer populations**
Bill Wall, Potlatch Corporation, Lewiston, ID
10:00-10:30 • **Coffee Break**
10:30-11:00 • **Deer Management by the resource user: An evaluation of quality deer management in the southeastern United States**
Grant Woods and David Guynn,Jr., Dept. of Forest Resources, Clemson Univ., Clemson, SC
11:00-11:30 • **Apparent demographic changes in black-tailed deer associated with wolf control on northern Vancouver Island**
Ian Hatter, BC Environment, Victoria, BC and Doug Janz, BC Environment, Nanaimo, BC
11:30-12:00 • **Desert mule deer mortality in the Trans Pecos Region of west Texas**
Richard Lawrence, Stephen Demarais, and Scott Lutz, Dept. of Range and Wildlife Management, Texas Tech. University, Lubbock TX

12:00-13:30 • **Lunch Break**

Session 2: General
Leader: Brian Nyberg, Manager - Wildlife Habitat Research, BC Forest Service

13:30-14:00 • **Environmental impact assessment of a deer management program: The California environmental quality act and deer hunting**
Sonke Mastrup, California Dept. of Fish and Game, Sacramento, CA
14:00-14:30 • **Evaluation of deer-highway relationships at Jordanelle Reservoir, Utah: Implications toward development of methods to reduce deer-highway mortality both locally and nationally**
Laura Romin and John Bissonette, Utah Co-op. Fish and Wildlife Research Unit, Logan, UT
14:30-15:00 • ***Making deer research make a difference***
Harold Armleder and Michaela Waterhouse, BC Forest Service, Williams Lake, BC
15:00-15:30 • **Coffee Break**
15:30-16:00 • **Integrated management at Tree Farm Licence 46 on Vancouver Island, BC**
Dave Lindsay, Fletcher Challenge Canada, Crofton, BC
16:00-16:30 • **The Columbian white-tailed deer: current status and management**
Alan Clark, USDI Fish & Wildlife Service, Cathlament, WA
16:30-17:00 • **Federal/State co-management of subsistence deer hunting in southeast Alaska**
Ted Schenck, Tongass National Forest, Sitka, AK, E.L. Young, Alaska Dept. of Fish and Game, Sitka, AK, and Carol Jorgensen, US Forest Service, Juneau, AK
17:00-17:30 • **Modelling deer vulnerability to hunter harvest in the context of predator-prey relationships**
Dave Vales, University of Idaho, Dept. of Fish and Wildlife, Moscow, Idaho
17:30-18:00 • **Break**

18:00 • *Supper (guest speaker TBA)*

Thursday, August 12

07:00-08:00 • **Breakfast**

Session 3: Habitat Evaluations
Leader: Fred Gilbert, Dean - Natural Resources and Environmental Studies, Univ of N BC

08:30-09:00 • **Habitat evaluations and use/availability data**
Tom Hobbs, Colorado State Fish and Game, Ft. Collins, CO
09:00-09:30 • **Using habitat selection data to assess a habitat suitability model for Columbian black-tailed deer**
Marvin Eng, BC Forest Service, Victoria, BC
09:30-10:00 • **Using harvest and pellet group indices to evaluate a habitat capability model for Sitka black-tailed deer**
(tentatively: Lowell Suring, USDA Forest Service, Anchorage, AK)
10:00-10:30 • **Coffee Break**
10:30-11:00 • **Defining the resiliency of mule deer populations based on habitat parameters**
Craig Bienz, Klamath Tribe, Klamath Falls, OR
11:00-11:30 • **Response of vegetation and deer body size to dynamic changes in deer density**
Stephen Lewis & David Klein, Alaska Co-op. Fish and Wildlife Research Unit, Fairbanks, AK
11:30-12:00 • TBA

12:00-13:30 • **Lunch Break**

Session 4: Co-management of ungulates by Government and Native People
Leader: Doug Janz, Regional Biologist - Vancouver Island Region, BC Environment

13:30-14:00 • **A historical perspective of native claims to lands and natural resources**
Ben Van Drimmelen, Natural Resources Law, Victoria, BC
14:00-14:30 • **The native perspective**
TBA
14:30-15:00 • **Case study 1: Co-operatively managing ungulates on Vancouver Island**
Kim Brunt, BC Environment, Nanaimo, BC
15:00-15:30 • **Coffee Break**
15:30-16:00 • **Case study 2: North West Territories - Co-operatively managing the Beverly Kaminuriak Caribou herd**
TBA
16:00-16:30 • **Case study 3:**
TBA
16:30-17:00 • **A look into the future**
Tom Woods, BC Environment, Victoria, BC
17:00-17:30 • **Break**

18:00 • **Salmon Barbecue by the BC Wildlife Federation**
followed by the **O.C. Wallmo Award** presentation

TOURIST INFORMATION

Vancouver Island Sites

Vancouver Island is renowned as one of 'the best outdoor vacation spots' around. A few recommended sites are listed below.

North Island:	Cape Scott Provincial Park Telegraph Cove - killer whale watching
West Coast:	Pacific Rim National Forest (Long Beach) West Coast Trail Tofino - gray whale watching Bamfield
East Coast:	Strathcona Park Campbell River / Quadra Island
South Island:	Victoria and its surrounding tourist attractions

Sport Fishing

Salmon fishing is very popular wherever you might go on the coast of Vancouver Island. Visitors should have no difficulty finding all manners of lodges, resorts, fish camps, trailer parks, motels, and campgrounds from which to choose and a great number of guide services and marinas. We will have fishing information available upon your arrival. For those who would rather plan ahead, please call the toll free number for Tourism BC listed below.

For more information about travelling on Vancouver Island, or anywhere else in B.C., please contact **1-800-663-6000** .

WESTERN STATES AND PROVINCES
DEER WORKSHOP

TRAVEL INFORMATION

Airports:

There are two international airports on Vancouver Island; Cassidy (Nanaimo) and Victoria. Nanaimo Airport is the closest to the workshop (23 km or 14 miles). There are also various small airports, the closest one being Qualicum Beach Airport (10 min).

Ferries

If you are travelling by car, the only way onto the Island is via ferries. The ferry from Tsawwassen travels to Victoria or Nanaimo and the ferry from Horseshoe Bay (Vancouver, B.C.) travels to Nanaimo. There are also ferries from Seattle, Port Angeles and Anacortes, Washington which travel to Victoria. Travel times by car to Tigh-Na-Mara are as follows:

20 minutes from the Nanaimo Ferry (Departure Bay)
2 hours from the Victoria Ferry (Swartz Bay)

Car Rentals

Car rentals are available at Vancouver Airport, Victoria Airport, Cassidy Airport (Nanaimo), Qualicum Beach Airport, Parksville, Nanaimo, Vancouver, and Victoria.

Alternative Accommodation

A Note of Caution: August is one of the busiest months in this area, so, if you are planning to attend its best to make reservations well in advance.

Graycrest Seaside Resort
1115 E. Island Hwy.,
Parksville, B.C.
Tel.604-248-6513

Rathtrevor Resort
1035 E. Island Hwy.,
Parksville, B.C.
Tel.604-248-2622

Madrona Beach Resort
#3-1045 E. Island Hwy.,
Parksville, B.C.
Tel.604-248-5503

Island Hall Beach Resort
181 Island Hwy.,
P.O.Box 340,
Parksville, B.C.
Tel.604-248-3225

Bayside Inn Resort
240 Dogwood Street,
Box 3000,
Parksville, B.C.
Tel.604-248-8333

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ALASKA

Rep: D. Larson

1. Current population trend or estimate - and proximity to management objectives:

Alaska's deer inhabit the coastal regions of the state, extending north from the southeast panhandle into Prince William Sound, and onto Kodiak, Afognak, and Raspberry Islands. The status and trend of populations fluctuate regularly and vary considerably from one area to another. It is impossible *therefore, to generalize about current trends or their relationships with management objectives. In some areas deer numbers appear to be on the increase, in other areas they appear to be stable, and in still other areas they appear to be on the decline. Similarly, management objectives are currently being met in some areas and not in others. Where deemed appropriate and necessary, seasons and bag limits are adjusted in response to changes in deer numbers.*

2. 1992 Hunting season statistics:

Type/length of season: *Alaska has a general hunting season which allows deer to be harvested with centre-fire firearms, bows and arrows, or muzzleloaders. Seasons vary in length, but most extend from August 1 - December 31. Some parts of the state allow both antlered and antlerless deer to be harvested, and other areas allow only the taking of antlered deer.*

# of hunters afield: *13,500*
# of hunter days: *68,240*
% success: *62 %*
Harvest: Antler: *14,847* Antlerless: *5,304*

3. Method used to estimate harvest:

ADF&G evaluates deer harvests using hunter questionnaires which are mailed to hunters who obtained deer harvest tickets during the season. All ticket holders residing in small communities are sent questionnaires, while 10% of the ticket holders residing in larger communities are randomly surveyed.

4. Do you limit hunters to one season (rifle,archery or muzzleloader)?

No.

5. Do your deer seasons extend into the breeding season? If so, how far?

Yes, deer seasons throughout Alaska extend into the breeding season. The extent varies slightly, however. For example, in most parts of the state the season runs from August 1 to December 31. However, in the Yakutat area, where deer numbers are low, the season runs only from November 1 to November 30. On parts of Kodiak Island the season runs from August 1 to October 31.

6. How many deer can a hunter legally take per year?

This Varies from area to area within the state; however, the maximum number of antlered deer which can be taken during a single season is 4. Similarly, up to 4 antlerless deer may be taken. However, the combination of antlered and antlerless deer may not exceed 4 in any part of the state.

7. Do you use antler-point restriction regulations? If so, what is the purpose of this regulation and is the objective being met? How do you assess hunter compliance - illegal kill?

No.

8. Do you have regulations to limit or distribute hunters? What type of regulations and are they working?

We have no specific regulations aimed at distributing hunters. However, because season lengths and bag limits tend to reflect deer abundance in specific areas, hunters often target those areas with the higher deer numbers and thereby distribute themselves into areas with higher deer densities.

9. Do you use access (road) management to regulate hunter distribution? What is the hunting publics reaction? Who is responsible for enforcement of closures etc.?

Not at this time. However, given the ever-increasing development of roads in some parts of the state, and the accompanying increase in access into once remote "refugia", this may become a management tool in the future.

10. Do you use a system such as "preference points" to distribute the opportunity to draw big game permits? If yes, what has been your experience with such a system?

No.

11. In what ways do you believe hunting impacts your deer populations (ie. compensatory/additive mortality, total population size, genetics, behaviour, etc.)? What data do you have to support this?

Impacts from hunting are considered negligible. This is demonstrated by the low estimated harvest relative to estimated population indices.

12. What do you feel are the major factor(s) limiting the deer populations, and what evidence is this based on?

The primary factor limiting most deer populations in Alaska has been bad winter weather. Wolf and bear predation (primarily wolf) also limit deer populations. Additionally, as logged areas grow and mature into closed-canopy second growth, we expect deer numbers to be substantially reduced because of the inability of second growth to provide sufficient food for deer. Carcasses found on beaches following deep snow winters attest to the role weather plays on populations. Wolf kills are often found in those areas where deer and wolves coexist. Studies of second growth plant communities have clearly identified the lack of forbs and shrubs in the understories.

13. Do you make any attempts to model deer populations? If so, please describe the model. Identify any problems.

No efforts have been made to model deer populations; however, the state together with the Forest Service has modelled habitat capability. These models, known as Habitat Suitability Index Models, calculate carrying capacity for deer in diverse habitats (ie., consideration is given to slope, aspect, and timber volume).

14. What is your state or province's approach to manipulating habitat to benefit deer?

We do not manipulate habitat for the benefit of deer in Alaska. However, the US Forest Service has implemented a few thinning projects in some second growth stands.

15. Primary deer research efforts underway at this time (please list):

A) Effects of timber management on deer habitat and deer populations.

ALBERTA

Rep:

1. Current population trend or estimate - and proximity to management objectives:

1992 Estimates:

Mule deer	*101,000*	*Stable (Mgmnt goal 97,000)*
White Tail	*171,000*	*Increasing(Mgmnt goal 173,000)*

2. 1992 Hunting season statistics:

Type/length of season:	# of hunters afield:	# of hunter days:	% success:	Harvest Antler:	Harvest Antlerless:
WTD variable	*56,700*	*455,651*	*45%*	*19,250*	*6,200*
MD variable	*34,000*	*230,700*	*45%*	*8,800*	*6,500*

3. Method used to estimate harvest:

Telephone questionnaire (interview)

4. Do you limit hunters to one season (rifle,archery or muzzleloader)?

No, although we do have limitations on certain licence and draw combinations.

5. Do your deer seasons extend into the breeding season? If so, how far?

Yes, most seasons close by Nov. 27 but some special seasons extend until Dec.9.

6. How many deer can a hunter legally take per year?

If successful in all draws a hunter could get 11 deer plus others if particular licences are issued with additional tags.

# Antlered:	# Antlerless:	Total:
MD 1	*1*	*plus potentially 5 tags that can be used on either sp.*
WTD 2	*2*	*plus potentially 5 tags that can be used on either sp.*

7. Do you use antler-point restriction regulations? If so, what is the purpose of this regulation and is the objective being met? How do you assess hunter compliance - illegal kill?

Yes, in some units we have a minimum 3-point requirement for mule deer. It allows any general licence (no draw involved) holder to hunt, but still ensures that some bucks remain for breeding. Illegal kill is monitored by reports from the public and verification by Officers.

8. Do you have regulations to limit or distribute hunters? What type of regulations and are they working?

Many seasons are open on a limited entry basis with specified numbers of hunters assigned to specific areas and, in all cases, to specified time periods within the overall season. They work well but are not without problems.

9. Do you use access (road) management to regulate hunter distribution? What is the hunting publics reaction? Who is responsible for enforcement of closures etc.?

There are various restrictions on vehicles and use of certain roads or trails, although most are not specifically in place to regulate hunter distribution.

10. Do you use a system such as "preference points" to distribute the opportunity to draw big game permits? If yes, what has been your experience with such a system?

We have just implemented a new perpetually accumulating priority system for use in fall 1993. Hunter priority will increase 1 level with each unsuccessful application for a specific hunt.

11. In what ways do you believe hunting impacts your deer populations (ie. compensatory/additive mortality, total population size, genetics, behaviour, etc.)? What data do you have to support this?

Varies, depending on habitat, human activity, latitude etc. Especially in agricultural areas on the prairies, hunting is likely the main mortality factor, particularly with mule deer. Hunting certainly keeps deer wary of humans.

12. What do you feel are the major factor(s) limiting the deer populations, and what evidence is this based on?

In accessible southern areas, human activity is likely the major limitation annually. In the long-term, undoubtedly the available habitat and climatic (especially winter) conditions are the big factors.

13. Do you make any attempts to model deer populations? If so, please describe the model. Identify any problems.

Very little.

14. What is your state or province's approach to manipulating habitat to benefit deer?

We do little habitat manipulation specifically for deer.

15. Primary deer research efforts underway at this time (please list):

None being conducted by this agency.

ARIZONA

Rep: J. DeVos

1. Current population trend or estimate - and proximity to management objectives:

Mule deer	*130,000*	*Steady - below objective*
White Tail	*95,000*	*Steady - below objective*

2. 1992 Hunting season statistics:

Type/length of season:	# of hunters afield:	# of hunter days:	% success:	Harvest Antler:	Harvest Antlerless:
General/4-14 days	*64,479*	*257,798*	*28%*	*17,785*	*75*
Muzzleloader/10-17 days	*1,189*	*5,808*	*20%*	*237*	*0*
Archery/<=73	*16,623*	*114,081*	*3%*	*758*	*0*

3. Method used to estimate harvest:

Mail questionnaire

4. Do you limit hunters to one season (rifle,archery or muzzleloader)?

Rifle or muzzleloader and/or archery.

5. Do your deer seasons extend into the breeding season? If so, how far?

Limited firearms seasons extend 4 weeks into breeding season. Archery seasons extend 8 weeks into breeding season.

6. How many deer can a hunter legally take per year?

# Antlered:	# Antlerless:	Total:
1	*1*	*1*

7. Do you use antler-point restriction regulations? If so, what is the purpose of this regulation and is the objective being met? How do you assess hunter compliance - illegal kill?

No

8. Do you have regulations to limit or distribute hunters? What type of regulations and are they working?

Yes, permits are limited in number and valid only for specific management units.

9. Do you use access (road) management to regulate hunter distribution? What is the hunting publics reaction? Who is responsible for enforcement of closures etc.?

Not for deer. This is used in some areas for elk. The public frequently feels that they are being denied access. The land management agency establishes the closure, the Game and Fish agency enforces it.

10. Do you use a system such as "preference points" to distribute the opportunity to draw big game permits? If yes, what has been your experience with such a system?

Yes, for bighorn, elk, buffalo, and antelope. Successful in satisfying demand for such a system and in increasing draw odds for those with bonus points.

11. In what ways do you believe hunting impacts your deer populations (ie. compensatory/additive mortality, total population size, genetics, behaviour, etc.)? What data do you have to support this?

Compensatory mortality

12. What do you feel are the major factor(s) limiting the deer populations, and what evidence is this based on?

Precipitation patterns. Drought cycles result in decreased deer populations and wet cycles result in increased deer populations.

13. Do you make any attempts to model deer populations? If so, please describe the model. Identify any problems.

Yes. Year to year accounting system using an initial population estimate, surveyed recruitment, harvest estimates from questionnaires, and estimates of natural mortality.

14. What is your state or province's approach to manipulating habitat to benefit deer?

We attempt to manipulate habitat through cooperative projects with the Land Management Agency. Projects include prescribed burns; waste developments; juniper eradication; etc.

15. Primary deer research efforts underway at this time (please list):

Little deer research is presently being conducted by our agency.

BRITISH COLUMBIA

Rep: I. Hatter, D. Doyle

1. Current population trend or estimate - and proximity to management objectives:

Mule deer (inc. black-tails)	*350,000*	*mule deer - stable-slightly increasing* *black-tail - stable-slightly decreasing*
White-tail deer	*48,000*	*white-tail - stable-slightly increasing*

2. 1992 Hunting season statistics:

Type/length of season:	# of hunters afield:	# of hunter days:	% success:	Harvest Antler:	Harvest Antlerless:
mule deer/ rifle/ 8-14 wks	*62,395*	*478,407*		*24,241*	*4881*
white-tail/ rifle/ 10-12 wks	*9,670*	*71,991*		*3,368*	*608*

3. Method used to estimate harvest:

Hunter sample mail questionnaire.

4. Do you limit hunters to one season (rifle,archery or muzzleloader)?

No.

5. Do your deer seasons extend into the breeding season? If so, how far?

mule deer - early to some late rut.
black-tails - mid to late rut.
white-tails - early to mid rut.

6. How many deer can a hunter legally take per year?

# Antlered:	# Antlerless:	Total:
3	*1*	*3*

There are exceptions in bag limits in some select areas to 10.

7. Do you use antler-point restriction regulations? If so, what is the purpose of this regulation and is the objective being met? How do you assess hunter compliance - illegal kill?

Some early and some late season hunts to provide trophy hunts and reduced hunter pressure.

8. Do you have regulations to limit or distribute hunters? What type of regulations and are they working?

Road closures and limited entry draw hunts.

9. Do you use access (road) management to regulate hunter distribution? What is the hunting publics reaction? Who is responsible for enforcement of closures etc.?

Yes, in some areas. Hunter response variable. Conservation officers enforce closures.

10. Do you use a system such as "preference points" to distribute the opportunity to draw big game permits? If yes, what has been your experience with such a system?

Small experiment on elk draws to decrease odds of previously successful draw applicants. First year.

11. In what ways do you believe hunting impacts your deer populations (ie. compensatory/additive mortality, total population size, genetics, behaviour, etc.)? What data do you have to support this?

Treated as if it were additive. Very little data to support this.

12. What do you feel are the major factor(s) limiting the deer populations, and what evidence is this based on?

Severe winters and predation. Circumstantial correlations for severe winters. Good data for predation on coastal black-tails.

13. Do you make any attempts to model deer populations? If so, please describe the model. Identify any problems.

A little. POP II and POP Sim (excel spreadsheet) estimating natural mortality rates. Problems are due to lack of hard data.

14. What is your state or province's approach to manipulating habitat to benefit deer?

Old growth deferrals for winter range. Some alternative harvesting and spacing for deer winter and spring range. Some benefit for deer from burns of sheep and elk ranges.

15. Primary deer research efforts underway at this time (please list):

Kamloops - Inventory and mortality rates for modelling (radio-telemetry)
Pemberton - Seasonal movements (radio telemetry)
Fort St. John - Seasonal movements (radio telemetry)

CALIFORNIA

Rep: S. Mastrup, K. Mayer

1. Current population trend or estimate - and proximity to management objectives:

Currently we estimate the pre-fawning population at about 670,000. The trend is variable between deer herds, some are going up, some stable, and some down. Based on the management objectives in the herd plans drafted in the early 1980's, very few herds are close to their population objective. We are currently redrafting the management objectives of our deer herds to more closely reflect the realities within California.

2. 1992 Hunting season statistics:

Harvest

Type/length of season:
Highly variable. Earliest season was an archery season that opened in early July (July 11), and the latest was an additional special hunt that closed the end of January, 1993 (January 31).

# of hunters afield:	# of hunter days:	% success:
191,000	*approx. 1,500,000*	*13%(reported),22%(estimated take)*

Harvest:
The reported harvest was 28,891 (39,000 estimated) antlered deer and 1,168 (1,600 estimated) antlerless deer.

3. Method used to estimate harvest:

We determine reported kill through mandatory tag return for successful hunters. Our estimated harvest is based on the estimates non-reporting rate of successful hunters. This is determined through a survey of game processing facilities (meat lockers, butchers etc.).

4. Do you limit hunters to one season (rifle,archery or muzzleloader)?

No. Hunters are allowed a maximum of 2 deer tags, which may be almost any combination of a general method tag (permitting the use of rifles, muzzleloaders, and archery equipment), additional hunt tags (available in archery only, muzzleloader only, and general methods depending on the specific hunt), or an archery only tag. The only restriction is that hunters may not acquire more than 1 X zone tag in any 1 year.

5. Do your deer seasons extend into the breeding season? If so, how far?

In general, no. There are a few limited entry public hunts and some Private Lands Management areas that do hunt into the rut.

6. How many deer can a hunter legally take per year?

A maximum of 2.

7. Do you use antler-point restriction regulations? If so, what is the purpose of this regulation and is the objective being met? How do you assess hunter compliance - illegal kill?

Yes. The existing forked horn or better law (made spike bucks illegal to kill in California) was passed in 1919 to protect a pool of bucks to do the breeding. The only assessment of compliance is based on the number of citations written for illegally taken spike bucks. To date, few citations are written for killing spike bucks. This law is biologically inappropriate and we will attempt to repeal it.

8. Do you have regulations to limit or distribute hunters? What type of regulations and are they working?

Yes. the state is divided into 44 zones and a similar number of "additional hunt opportunities". For each zone a limited number of deer tags are available, and hunters are allowed to hunt only the zone for which the tag was issued. The regulations have been effective at limiting and distributing hunters. Some hunters find the system unfair, confusing, and intimidating, and may have prompted some to give up deer hunting altogether.

9. Do you use access (road) management to regulate hunter distribution? What is the hunting publics reaction? Who is responsible for enforcement of closures etc.?

Yes, to a limited degree. The publics reaction is mixed. Some like the reduced number of hunters generally found in these access restricted areas, others feel it discriminates against those who are not as mobile or physically fit. In most cases the responsibility is shared between the landowner (usually private or federal) and the Department.

10. Do you use a system such as "preference points" to distribute the opportunity to draw big game permits? If yes, what has been your experience with such a system?

No, we use a pure lottery system (one random number per person with equal odds for all that enter).

11. In what ways do you believe hunting impacts your deer populations (ie. compensatory/additive mortality, total population size, genetics, behaviour, etc.)? What data do you have to support this?

California's largely buck-only hunting appears to have no effect on the size of deer populations. Hunting significantly reduces the buck segment of the population (up to 75% of the bucks are killed annually). It is believed that most of the herds in California are habitat (forage mostly) limited, as evidenced by low fawn recruitment and fair to poor body condition. It is also believed that hunting mortality is compensated by both reduced mortality and increased recruitment where habitat conditions permit. The evidence for this comes from numerous cases where a local population was significantly reduced in size, and was followed by significant increases in fawn recruitment and improved body condition.

12. What do you feel are the major factor(s) limiting the deer populations, and what evidence is this based on?

Habitat conditions (forage quality and quantity) and the factors that affect it (decadent vegetation, drought, over-grazing, development, etc.) are believed to be the primary limiting facto for most of the deer herds. Severe winters, predation and disease are also believed to be important factors for some herds. Poor body condition and fawn survival are common consequences of poor habitat condition. Research on the North Kings and Round Valley deer herds indicate that predation by mountain lions can be substantial. Large blue tongue die-offs occur periodically.

13. Do you make any attempts to model deer populations? If so, please describe the model. Identify any problems.

Herd composition and buck harvest data are collected and used with CIR and population reconstruction (KILLVARY) models to estimate abundance and follow trends. We are currently planning to adopt POP II where appropriate. The most important problem for some herds is lack of sufficient data and the cost of acquiring it.

14. What is your state or province's approach to manipulating habitat to benefit deer?

We provide funds and are active cooperators in deer management. Success has been varied in these efforts.

15. Primary deer research efforts underway at this time (please list):

1) Testing habitat capability models used by federal agencies. 2) Livestock-deer interactions. 3) Population assessment methodology. 4) ORV-deer interactions. 5) Physiological response to wildfire. 6) Methodology for evaluating physiological condition in the field. 7) Developing new population models that are less data intensive and more robust than models currently in use.

COLORADO

Rep: J. Olterman

1. Current population trend or estimate - and proximity to management objectives:

1993 Prehunt Projection - 650,783
1993 Posthunt Objective - 575,390
Longterm Objective - 600,000

2. 1992 Hunting season statistics:

Type/length of season:	# of hunters afield:	# of hunter days:	% success:	Harvest Antler:	Harvest Antlerless:
Archery - 30 days	*29,786*	*189,940*	*24%*	*3,084*	*2,900*
Rifle -9 day buck					
-24 day doe	*200,670*	*669,363*	*39%*	*44,852*	*29,103*

3. Method used to estimate harvest:

Over the counter licences - 25% surveyed by phone limited license, 50% surveyed by mail.

4. Do you limit hunters to one season (rifle,archery or muzzleloader)?

Yes.

5. Do your deer seasons extend into the breeding season? If so, how far?

Plains (east of I-25) deer seasons run December 1-16 which is the end of the white-tailed deer breeding seasons. Doe seasons on private land coincide with mule deer breeding seasons.

6. How many deer can a hunter legally take per year?

# Antlered:	# Antlerless:	Total:
1	*2*	*3*

7. Do you use antler-point restriction regulations? If so, what is the purpose of this regulation and is the objective being met? How do you assess hunter compliance - illegal kill?

One DAU (Data Analysis Unit) has kept a 3 point restriction for 1992-1994 for further evaluation. Statewide 3 point restriction during 1986-1991 had limited success in some units and were viewed as detrimental in many units.

8. Do you have regulations to limit or distribute hunters? What type of regulations and are they working?

We use 3 different rifle seasons for deer. Hunters may only hunt in one (except for game damage licences).

9. Do you use access (road) management to regulate hunter distribution? What is the hunting publics reaction? Who is responsible for enforcement of closures etc.?

Not much. Some road closures are negotiated with USFS and the BLM.

10. Do you use a system such as "preference points" to distribute the opportunity to draw big game permits? If yes, what has been your experience with such a system?

Yes. Preference point system has been in use over 10 years. It is quite successful. There is no cap on the number of points a hunter can acquire.

11. In what ways do you believe hunting impacts your deer populations (ie. compensatory/additive mortality, total population size, genetics, behaviour, etc.)? What data do you have to support this?

Ongoing research suggests mortality (including hunting) is compensatory and density dependant. We have no data on hunting mortality or genetics or behaviour.

12. What do you feel are the major factor(s) limiting the deer populations, and what evidence is this based on?

1. *Severe winter conditions*
2. *Forage quality on winter range.*
3. *Competition on winter ranges between deer and domestic livestock and possibly elk.*
4. *Loss of key migration corridors and winter range.*

13. Do you make any attempts to model deer populations? If so, please describe the model. Identify any problems.

Yes. POP 2

14. What is your state or province's approach to manipulating habitat to benefit deer?

Primarily we cooperate with Federal agencies.

15. Primary deer research efforts underway at this time (please list):

Pience Basin deer mortality study (see # 11).
Deer Fertility/ Artificial Sterilization Study-Rocky Mtn. Arsenal.

IDAHO

Rep: L. Kuck

1. Current population trend or estimate - and proximity to management objectives:

Mule deer - stable/downward - dependant upon yearly weather variations. Goal: to maintain or allow increase.
White-tailed deer - stable/upward - dependant upon yearly weather variations. Goal: to maintain or increase.

2. 1992 Hunting season statistics:

Type/length of season:	# of hunters afield:	# of hunter days:	Harvest Antler:	Antlerless:	Total:
General	*See attachment "A"*		*18,728*	*25,862*	*44,590*
Controlled			*3,884*	*3,731*	*7,651*
Archery			*1,628*	*1,387*	*3,015*
Muzzleloader			*3,198*	*2,836*	*6,034*
	107,300	*866,000*	*27,438*	*33,816*	*61,254*

3. Method used to estimate harvest:

Random telephone survey.

4. Do you limit hunters to one season (rifle,archery or muzzleloader)?

No.

5. Do your deer seasons extend into the breeding season? If so, how far?

Mule deer - No except for controlled hunts and to November 18 in seven backcountry units.

6. How many deer can a hunter legally take per year?

# Antlered:	# Antlerless:	Total:
		1

7. Do you use antler-point restriction regulations? If so, what is the purpose of this regulation and is the objective being met? How do you assess hunter compliance - illegal kill?

Yes - Forked-horned only in 4 mule deer units with low security to increase buck escapement within general season framework. Any buck controlled hunts are offered during rut.
No - Measurement of illegal kill.

8. Do you have regulations to limit or distribute hunters? What type of regulations and are they working?

Offer 65 controlled hunts with nearly 11,000 permits. Regulations are meeting management objectives.

9. Do you use access (road) management to regulate hunter distribution? What is the hunting publics reaction? Who is responsible for enforcement of closures etc.?

Indirectly, most access management is directed towards elk. Public reaction improves in time after closures are in place. Federal agencies primary enforcement with cooperation from state through interagency agreement.

10. Do you use a system such as "preference points" to distribute the opportunity to draw big game permits? If yes, what has been your experience with such a system?

No.

11. In what ways do you believe hunting impacts your deer populations (ie. compensatory/additive mortality, total population size, genetics, behaviour, etc.)? What data do you have to support this?

Uncertain if compensatory/additive. Population size and buck:doe ratios directly impacted by hunting mortality.

12. What do you feel are the major factor(s) limiting the deer populations, and what evidence is this based on?

Habitat

13. Do you make any attempts to model deer populations? If so, please describe the model. Identify any problems.

No.

14. What is your state or province's approach to manipulating habitat to benefit deer?

Through input to federal agencies, land management planning and implementation.

15. Primary deer research efforts underway at this time (please list):

Mule deer sightability development, deer mortality and habitat use. Contact Jim Unsworth (208) 887-6729.
White tailed deer mortality. Contact Pete Zager (208) 743-6502.

ATTACHMENT A

Type/Length of Season:

Mule Deer

Season	Season Dates	Season Length
Early archery	8/30-9/24	26 days
Controlled any legal weapon	9/24-10/22	30 days
General any legal weapon	9/15-11/18	65 days
General and controlled	10/5-18/19 or 29	15 or 25 days
General any legal weapon	10/15-11/3	20 days
General and controlled muzzleloader	11/10-11/24	15 days
Controlled any legal weapon	10/11-11/24	15 days
Late archery	11/10-11/24 11/25-12/19	15 days 25 days

White-tailed Deer

Early archery	8/30-9/24	26 days
General any legal weapon	10/10-12/1 11/1-12/1 10/10-11/20	54 days 31 days 42 days
Muzzleloader	11/10-11/29 11/25-12/9	20 days 15 days
Late archery	11/25-12/9	15 days

NEVADA

Rep:

1. Current population trend or estimate - and proximity to management objectives:

Year	*Estimate*
1993	*149,000*
1992	*183,000*
1991	*180,000*
1990	*202,000*
1989	*212,000*

2. 1992 Hunting season statistics:

Type/length of season:	# of hunters afield:	# of hunter days:	% success:	Harvest Antler:	Harvest Antlerless:
Rifle / 29	*25,013*	*96,064*	*53.6*	*10,227*	*3,185*
Muzzl. / 15	*612*	*384*	*72.1*	*277*	*0*
Arch. / 27	*2,513*	*13,807*	*23.2*	*584*	*0*

3. Method used to estimate harvest:

Nevada uses a mandatory questionnaire that is attached to the carcass tag mailed to the hunter after the drawing. Failure to return the questionnaire or not fully completing the return results in the hunter being ineligible to hunt big game in the succeeding year. Eligibility can be restored with payment of an administrative fine of $50. The reporting rate has averaged 95% for over 10 years.

4. Do you limit hunters to one season (rifle,archery or muzzleloader)?

Yes.

5. Do your deer seasons extend into the breeding season? If so, how far?

The primary rifle season usually begins the first or second weekend in October and ends the first or second weekend of November. The breeding season peaks in mid-November, but can be well underway in late October. Some late seasons extend into December with a few seasons open as late as early January.

6. How many deer can a hunter legally take per year?

For several years, two or three deer could be taken, a buck, an antlerless deer, and perhaps a deer taken in a special depredation hunt. With the population declines of the last few years, this has been rescinded. Now one hunter can take one deer.

7. Do you use antler-point restriction regulations? If so, what is the purpose of this regulation and is the objective being met? How do you assess hunter compliance - illegal kill?

No. Nevada regulations classified spike bucks as antlerless animals for many years. With full quota hunting, this was unnecessary whether effective or not. Our experience with an experimental 4-point regulation was that the unclaimed illegal kill was equal to or greater than the legal kill.

8. Do you have regulations to limit or distribute hunters? What type of regulations and are they working?

Nevada has used a full quota hunting system since 1976. The state is divided into units with quotas proportional to unit deer estimates. The system is very conservative with high hunter success and post hunt buck ratios.

9. Do you use access (road) management to regulate hunter distribution? What is the hunting publics reaction? Who is responsible for enforcement of closures etc.?

No.

10. Do you use a system such as "preference points" to distribute the opportunity to draw big game permits? If yes, what has been your experience with such a system?

Nevada has just adopted a "bonus" points system. The system was patterned after Arizona's with modifications. This year was the first year the system was used.

11. In what ways do you believe hunting impacts your deer populations (ie. compensatory/additive mortality, total population size, genetics, behaviour, etc.)? What data do you have to support this?

Aside from the direct removal, our present hunting strategy does not seem to have significant consequences. It appears that the heavy kills of the 1950's and 1960's were producing compensatory recruitment, but this has not been demonstrated conclusively.

12. What do you feel are the major factor(s) limiting the deer populations, and what evidence is this based on?

Habitat is the greatest limiting factor for deer in Nevada. The geography of the state results in small, widely dispersed islands of good deer habitat, but there are no large contiguous blocks of habitat. Land uses, cheat grass invasion and successional changes are negatively affecting most deer habitat. Recent phenomenal growth of Nevada's human population is removing habitat at an accelerating rate, and regular deer movements between seasonal habitats is being blocked.

13. Do you make any attempts to model deer populations? If so, please describe the model. Identify any problems.

Nevada has used POP-II by Fossil Creek Software for the last 10 years to model deer populations for establishing hunting quota recommendations. We have adapted the program to the data we are capable of collecting. Basically, this was a simplification of the program. Our inputs consist of kill, post hunt and spring composition data. We model the population for the last 10-15 years, projecting for the coming hunting season.

14. What is your state or province's approach to manipulating habitat to benefit deer?

We encourage habitat manipulation and participate as much as a limited budget allows. Recent windfalls from mining have enabled us to participate in several projects the last few years. These projects have included pinyon-juniper thinning and attempts to restore impoverished winter ranges.

15. Primary deer research efforts underway at this time (please list):
None.

NEW MEXICO

Rep:

1. Current population trend or estimate - and proximity to management objectives:

We estimate 250,000 deer, a stable trend statewide. The vast majority of these are mule deer (both Odecoileus hemionus hemionus and O.h. crooki), it also includes small numbers of two white-tail subspecies, O. virginianus texanus and O.v. couesi. Comparing harvest projections to management objectives will be done this fall.

2. 1992 Hunting season statistics:

Type/length of season:	# of hunters afield:	# of hunter days:	% success:	Harvest Antler:	Harvest Antlerless:
Bow/20 days	*5,386*	*50,769*	*9.4*	*745*	*0*
Muzzleloader/10 days	*5,255*	*24,179*	*32.2*	*1,671*	*0*
Rifle/2-7 days	*63,775*	*207,036*	*25.2*	*15,169*	*0*

**Rifle hunts consist of one to 3 hunt periods per region, the hunts are variable in length, running from 2 days to 7 days per hunt, starting on either the traditional Saturday or mid-week.*

3. Method used to estimate harvest:

Projections from hunter-mailed questionnaire.

4. Do you limit hunters to one season (rifle,archery or muzzleloader)?

Yes, hunters must choose a weapon, a region and a hunt, with very few exceptions.

5. Do your deer seasons extend into the breeding season? If so, how far?

Generally the breeding season is late November through December for the northern New Mexico deer, it extends through February and later in the south. All hunts are over by mid-November with the exception of a couple of late bow hunts that extend into January.

6. How many deer can a hunter legally take per year?

One fork-antlered buck.

7. Do you use antler-point restriction regulations? If so, what is the purpose of this regulation and is the objective being met? How do you assess hunter compliance - illegal kill?

Yes, forked-antlered or bigger, defined as a buck with at least 1 antler with 2 distinct points, a burr at the base does not constitute a point or a fork. The purpose is to protect does from hunters mistaking those does for spike bucks. There is no organized assessment of hunter compliance.

8. Do you have regulations to limit or distribute hunters? What type of regulations and are they working?

Yes, hunters must choose their weapon, region, and hunt, which is, generally, three short hunts per region. This limits and distributes hunters well in unlimited "over-the counter" deer hunts. New Mexico also has restricted entry permit hunts in wildlife areas and selected regions. In 1992, 26 entry hunts were held in 11 areas with approximately 5,000 permits total. We feel they are working well.

9. Do you use access (road) management to regulate hunter distribution? What is the hunting publics reaction? Who is responsible for enforcement of closures etc.?

Limited access control is accomplished in conjunction with the Federal Land management agencies. Generally, it is well received. Department and Federal Agencies enforce closures.

10. Do you use a system such as "preference points" to distribute the opportunity to draw big game permits? If yes, what has been your experience with such a system?

Not for deer. New Mexico,is trying a preference system again for elk, beginning in 1991, the first drawing is to be held in 1996. Approximately 20 years ago a preference system for elk failed, due, in part, because odds of drawing actually became smaller as the pool of annually rejected applicants surpassed the available permits.

11. In what ways do you believe hunting impacts your deer populations (ie. compensatory/additive mortality, total population size, genetics, behaviour, etc.)? What data do you have to support this?

Hunting is additive mortality to deer populations in New Mexico. In populations where hunting has recently been curtailed or has not occurred for an extended period, the buck to doe ratio increases, approaching, but not reaching 1:1. The statewide average for hunted populations is around 20 bucks per 100 does. The total populations seems to increase with the added bucks only to level off with natural mortality rates defining the herd size. Data is from hunted and unhunted study populations.

12. What do you feel are the major factor(s) limiting the deer populations, and what evidence is this based on?

Our Population/Environment/Hunt computer model has demonstrated adverse relationships between low rainfall and deer survival. The weather is a major influence on survival and reproduction. Low rainfall combined with New Mexico's intense solar radiation and shallow erodible soils provide sparse vegetation for cover and forage. It takes several consecutive wet years, and infrequent event, to see recruitment improve. These dry conditions set up a chain reaction detrimental to deer when combined with forage/cover removal by grazing, which in turn increases vulnerability to predation and poaching, etc.

13. Do you make any attempts to model deer populations? If so, please describe the model. Identify any problems.

Yes. The mule deer model predicts changes in the size and age/sex structure of a herd based on the interaction among population parameters, environmental variables and hunting. Through multivariate statistics, sub-models predict condition, birth and survival rates based on associations with environmental variables. The hunt sub-model predicts harvest mortality based on hunter pressure and regulations (weapon type, season length).

14. What is your state or province's approach to manipulating habitat to benefit deer?

Habitat manipulation on public land is the responsibility of Federal and State land management agencies.

15. Primary deer research efforts underway at this time (please list):

The final report on a 16-year mule deer study is due this fall, no other research is scheduled.

9. Do you use access (road) management to regulate hunter distribution? What is the hunting publics reaction? Who is responsible for enforcement of closures etc.?

Yes we use cooperative travel management to regulate hunter distribution. Hunters are generally supportive of travel management areas; however some people do not like them. The Oregon Dept. of Fish and Wildlife and the Oregon State Police, or the US Forest Service are responsible depending on the area.

10. Do you use a system such as "preference points" to distribute the opportunity to draw big game permits? If yes, what has been your experience with such a system?

The Oregon Dept. of Fish and Wildlife adopted a "preference point" system that went into effect this year for Controlled Buck deer and Antelope. The system is too new to evaluate at this point. Under this system 75% of tags will be issued based on preference points and 25% will be issued by a lottery process for each hunt.

11. In what ways do you believe hunting impacts your deer populations (ie. compensatory/additive mortality, total population size, genetics, behaviour, etc.)? What data do you have to support this?

I feel that mule deer hunting impacts the number of males/ 100 females. We have a number of units where this ratio is below 10 bucks/100 does. We do not have evidence to support other effects.

12. What do you feel are the major factor(s) limiting the deer populations, and what evidence is this based on?

We feel that mule deer populations are probably limited by habitat. No direct evidence reflects this. Some biologists believe that populations are effected by fawn predation but the effects are not documented.

13. Do you make any attempts to model deer populations? If so, please describe the model. Identify any problems.

Yes. We are trying to use the POP II simulation model. Our biggest problem is having the necessary data to enter into the model. We have begun to conduct some studies to determine natural mortality rates for adult deer.

14. What is your state or province's approach to manipulating habitat to benefit deer?

We have several habitat enhancement programs which try to improve deer habitat, primarily forage. We also participate in some cooperative projects to remove juniper etc.

15. Primary deer research efforts underway at this time (please list):

We do not have a major deer research project currently. We are doing an AUM equivalency study with deer, elk and cattle inside the Starkey Experimental Forest. Also deer are a part of another study investigating the effects of intensive forest management and roads on deer, elk and cattle.

SASKATCHEWAN

Rep: D. Brewster

1. Current population trend or estimate - and proximity to management objectives:

   Winter population 250,000 Management objective = 200,000

2. 1992 Hunting season statistics:

Type/length of season:	# of hunters afield:	# of hunter days:	% success:	Harvest Antler: Antlerless:
South - 3 wk either sex	*43,000*	*270,000*	*66-79%*	*1.78 : 1.00*
North - 5 wk either sex				
Primitive Weapons - 8 wk				

3. Method used to estimate harvest:

   Hunter questionnaire survey.

4. Do you limit hunters to one season (rifle,archery or muzzleloader)?

   No; Licence valid in all seasons / weapon types

5. Do your deer seasons extend into the breeding season? If so, how far?

   Yes; South Saskatchewan = peak of rut; North Saskatchewan = entire rut

6. How many deer can a hunter legally take per year?

# Antlered:	# Antlerless:	Total:
South = 1	*South = 1*	*Max = 2*
North = 2		

7. Do you use antler-point restriction regulations? If so, what is the purpose of this regulation and is the objective being met? How do you assess hunter compliance - illegal kill?

   No

8. Do you have regulations to limit or distribute hunters? What type of regulations and are they working?

   No regulations to limit hunters/numbers
   Non-residents of Canada restricted to Northern Zones.

9. Do you use access (road) management to regulate hunter distribution? What is the hunting publics reaction? Who is responsible for enforcement of closures etc.?

Only on the North (forest road closures and road corridor game preserves); designed for moose management; public reaction positive; enforced by department staff.

10. Do you use a system such as "preference points" to distribute the opportunity to draw big game permits? If yes, what has been your experience with such a system?

Yes, for mule deer, elk, moose and antelope; not in place for white-tailed deer yet. Licence allocation system (big game draw) has worked well for most species.

11. In what ways do you believe hunting impacts your deer populations (ie. compensatory/additive mortality, total population size, genetics, behaviour, etc.)? What data do you have to support this?

Hunting currently has little impact on population (compensatory); winter severity is major source of mortality; hunting may be having some adverse impact on "mature bucks" in some areas but not well documented.

12. What do you feel are the major factor(s) limiting the deer populations, and what evidence is this based on?

Winter severity; major population declines/ increases following severe vs. mild winters respectively.

13. Do you make any attempts to model deer populations? If so, please describe the model. Identify any problems.

Yes. currently using "POP II" software distributed by John Bartholow (Fossil Creek Software - Fort Collins); works well for our situation.

14. What is your state or province's approach to manipulating habitat to benefit deer?

Basically, purchase or protection of key wintering areas.

15. Primary deer research efforts underway at this time (please list):

Only one research effort ongoing (at this time):
Investigating: - *Fawn Mortality*
- *Reprod. performance/ fetal development*
- *Movements and habitat use*
Completion: Fall 1993

TEXAS

Rep: P.D. Karns

1. Current population trend or estimate - and proximity to management objectives:

   About 3 million. Population declining since 1986. No population objectives.

2. 1992 Hunting season statistics:

Type/length of season:	# of hunters afield:	# of hunter days:	% success:	Harvest Antler: Antlerless:
General	*614,101*	*5,675,660*	*57%*	*262,416:206,477*

3. Method used to estimate harvest:

   Mail survey.

4. Do you limit hunters to one season (rifle,archery or muzzleloader)?

   No

5. Do your deer seasons extend into the breeding season? If so, how far?

   Probably. Currently being studied

6. How many deer can a hunter legally take per year?

# Antlered:	# Antlerless:	Total:
3	*1-5*	*5*

7. Do you use antler-point restriction regulations? If so, what is the purpose of this regulation and is the objective being met? How do you assess hunter compliance - illegal kill?

   No

8. Do you have regulations to limit or distribute hunters? What type of regulations and are they working?

   No

9. Do you use access (road) management to regulate hunter distribution? What is the hunting publics reaction? Who is responsible for enforcement of closures etc.?

No

10. Do you use a system such as "preference points" to distribute the opportunity to draw big game permits? If yes, what has been your experience with such a system?

No

11. In what ways do you believe hunting impacts your deer populations (ie. compensatory/additive mortality, total population size, genetics, behaviour, etc.)? What data do you have to support this?

East Texas it is additive - yearlings largest cohort
South Texas it is probably compensatory - 4 1/2 year cohort is largest in harvest.

12. What do you feel are the major factor(s) limiting the deer populations, and what evidence is this based on?

Hunting in East Texas.

13. Do you make any attempts to model deer populations? If so, please describe the model. Identify any problems.

Not many

14. What is your state or province's approach to manipulating habitat to benefit deer?

Work with Land Managers

15. Primary deer research efforts underway at this time (please list):

Deer Genetics
Deer breeding chronology

UTAH

Rep: W. Shields

1. Current population trend or estimate - and proximity to management objectives:

Utah is recovering from 6-7 years of drought. During this time, the mule deer population declined by 30 percent (estimated). During the past winter (1992-93), severe winter conditions caused heavy mortality in many areas of the state, reducing the population even more. The statewide mule deer population may be down as much as 40 percent.
A new statewide hunting strategy becomes effective in 1993. *Hunters must choose among archery, rifle, or muzzleloader hunting seasons. Previously, hunters could hunt all three seasons until they filled the single buck tag. The new strategy is supported by incentives to attract hunters into primitive weapon seasons, optional antlerless deer hunts if hunters choose not to hunt bucks, vehicle access management, and limited entry buck hunts. The overall objectives are to improve buck numbers and ease rifle hunter crowding. Preliminary hunter surveys indicate a reduction in general rifle hunters from 170,000 to 110,000.*

2. 1992 Hunting season statistics:

Type/length of season:	# of hunters afield:	# of hunter days:	% success:	Harvest Antler:	Harvest Antlerless:
archery 17 days	*28,320*		*26*		
rifle 11 days	*170,645*		*28*		
muzzle-loader 10 days	*14,972*		*13*		
limited entry varies	*1,979*		*61*		
high country varies	*1,003*		*58*		
control varies	*11,828*		*72*		
				Total 56,658	*13,279*

3. Method used to estimate harvest:

General statewide archery, rifle and muzzleloader harvest surveys are conducted by telephone interview (University of Utah, Research Survey Centre). Limited permit hunts are surveyed by mail questionnaire.

4. Do you limit hunters to one season (rifle,archery or muzzleloader)?

Yes, beginning in 1993.

5. Do your deer seasons extend into the breeding season? If so, how far?

Generally, no. However, some "high country" hunts include the breeding period. Muzzleloader season ends during the early part of the breeding season, and in some areas of the state may approach the peak of rutting. We try to avoid general hunting during the peak of rutting, but we receive constant pressure from muzzleloader hunters who want their hunting period to span the breeding season.

6. How many deer can a hunter legally take per year?

# Antlered:	# Antlerless:	Total:
1	*1 - 2*	*1 - 3*

7. Do you use antler-point restriction regulations? If so, what is the purpose of this regulation and is the objective being met? How do you assess hunter compliance - illegal kill?

No. Those our Big Game Board authorized in the late 1980's were rescinded in 1990 because illegal kill was excessive (35+%). Our method of assessing hunter compliance while the strategy was in place was to ride transects by horseback through the various hunting units looking for discarded bucks.

8. Do you have regulations to limit or distribute hunters? What type of regulations and are they working?

Yes. Limiting hunters to one season and offering primitive weapons incentives is our way of stratifying and dispersing hunters. We are beginning this strategy in 1993. We limit hunters otherwise through limited entry hunting. Our limited entry units have become very popular offering aesthetic quality as well as access to a greater number of mature bucks.

9. Do you use access (road) management to regulate hunter distribution? What is the hunting publics reaction? Who is responsible for enforcement of closures etc.?

Lands owned by the Utah Division of Wildlife Resources are usually restricted to vehicle access during big game hunting seasons. We encourage vehicle access management on other public land areas as well, but the philosophy is met with a range of mixed responses from complete opposition to complete buyin in certain areas and by certain entities. The initial reaction of the hunting public is mixed but mostly leans toward opposition. However, in time the restrictions on each restricted area become preferred as benefits are realized.
The respective agency having jurisdiction over the property takes the lead in enforcing road closures. Our division lends support as time and personnel allow. We encourage road closures as part of our strategy of improving big game populations and hunting opportunity.

10. Do you use a system such as "preference points" to distribute the opportunity to draw big game permits? If yes, what has been your experience with such a system?

We have adopted Arizona's "Bonus Point" system. Because it goes into effect in 1993, we have no experience yet to judge its results.

11. In what ways do you believe hunting impacts your deer populations (ie. compensatory/additive mortality, total population size, genetics, behaviour, etc.)? What data do you have to support this?

12. What do you feel are the major factor(s) limiting the deer populations, and what evidence is this based on?

Mostly weather and hunting. In recent years we have growing suspicions that disease (ie. blue tongue?) may be playing a greater role - we have isolated incidents of areawide die-offs but no obvious explanations.

13. Do you make any attempts to model deer populations? If so, please describe the model. Identify any problems.

We've only dabbled with a spreadsheet model we developed to specifically use the data we have for our deer herds. It's a simple model that possibly anyone could adapt for their needs. We will be using modelling more seriously in the next few years as we redevelop deer management plans.

14. What is your state or province's approach to manipulating habitat to benefit deer?

Mechanical manipulation of undesirable woodland and decadent shrubs. Limited by lack of funding.

15. Primary deer research efforts underway at this time (please list):

Crop depredation -- evaluation of actual damage and procedures for measuring damage.

WASHINGTON

Rep:

1. Current population trend or estimate - and proximity to management objectives:

   Population estimate - 400,000 - stable population
   Population approximates management objectives

2. 1992 Hunting season statistics:

Type/length of season:	# of hunters afield:	# of hunter days:	% success:	Harvest Antler:	Harvest Antlerless:
Modern Firearm/9-37	*173,413*	*1,013,176*	*27.5%*	*39,384*	*8317*
Archery/15-65	*22,653*	*198,934*	*21.4%*	*1,878*	*2978*
Muzzleloader/7-31	*8,081*	*45,544*	*33.9%*	*971*	*1769*

3. Method used to estimate harvest:

   3 wave questionnaire to 10% of hunters

4. Do you limit hunters to one season (rifle,archery or muzzleloader)?

   Yes.

5. Do your deer seasons extend into the breeding season? If so, how far?

   Our late buck season is 3 days Nov 19-22
   Peak of breeding is 3rd week of November to mid-December

6. How many deer can a hunter legally take per year?

# Antlered:		# Antlerless:	Total:
1	*or*	*1*	*1*

   We had a special white-tail two deer by limit last year but not this year.

7. Do you use antler-point restriction regulations? If so, what is the purpose of this regulation and is the objective being met? How do you assess hunter compliance - illegal kill?

   Yes, we use antler point restrictions. The purpose is to enhance yearling buck escapement. In areas with antler point restrictions, our buck escapement is much higher because yearlings are protected. There is some illegal kill but post season buck ratios are up and that's the measure of success.

8. Do you have regulations to limit or distribute hunters? What type of regulations and are they working?

   We have 3 way weapon selection. Archery and muzzleloader seasons are more liberal and these seasons draw hunters away from traditional firearm seasons.

9. Do you use access (road) management to regulate hunter distribution? What is the hunting publics reaction? Who is responsible for enforcement of closures etc.?

We have road management programs to regulate hunter distribution. Surveys indicate 60-70% support for current or expanded road management. Our enforcement division is responsible for enforcement.

10. Do you use a system such as "preference points" to distribute the opportunity to draw big game permits? If yes, what has been your experience with such a system?

No

11. In what ways do you believe hunting impacts your deer populations (ie. compensatory/additive mortality, total population size, genetics, behaviour, etc.)? What data do you have to support this?

I believe hunting mortality can be either compensatory or additive, depending on the situation. Antlerless hunting can limit population size but our doe harvest is minimal in most areas and does not affect population size.

12. What do you feel are the major factor(s) limiting the deer populations, and what evidence is this based on?

The major factors limiting deer populations depend on area;
Westside - urban sprawl, human population increases.
Eastside - winter range losses from recreational development and conflicts with agriculture.

13. Do you make any attempts to model deer populations? If so, please describe the model. Identify any problems.

No

14. What is your state or province's approach to manipulating habitat to benefit deer?

We work with the landowner to protect critical habitats and conduct some habitat improvement depending on the situation.

15. Primary deer research efforts underway at this time (please list):

None

WYOMING

Rep: D. Lutz

1. Current population trend or estimate - and proximity to management objectives:

	estimate	*objective*
White-tail	*51,815*	*52,000*
Mule Deer	*585,816*	*509,950*

2. 1992 Hunting season statistics:

Type/length of season:		# of hunters afield:	# of hunter days:	% success:	Harvest Antler: Antlerless:
see #6	*White-tail*	*22,787*	*110,618*	*53.1%*	*7,427 : 7,325*
	Mule deer	*101,703*	*469,854*	*85.6%*	*49,439 : 37,571*

3. Method used to estimate harvest:

Hunter mail survey

4. Do you limit hunters to one season (rifle,archery or muzzleloader)?

No.

5. Do your deer seasons extend into the breeding season? If so, how far?

Some; seasons are set by hunt area. Season dates vary from September 1 to December 31.

6. How many deer can a hunter legally take per year?

# Antlered:	# Antlerless:	Total:
*2**	*7*	*9*

** 1 white-tail and 1 mule deer; hunters can take a doe instead in some areas, for a total of 9 antlerless possible.*

7. Do you use antler-point restriction regulations? If so, what is the purpose of this regulation and is the objective being met? How do you assess hunter compliance - illegal kill?

No.

8. Do you have regulations to limit or distribute hunters? What type of regulations and are they working?

Yes. The number of nonresident general license hunters is limited by regional license quotas. We also have limited license quotas for all hunters in several hunt areas. Multiple opening days, varying season lengths, legal sex, and bag limits also distribute hunters in space and time.

9. Do you use access (road) management to regulate hunter distribution? What is the hunting publics reaction? Who is responsible for enforcement of closures etc.?

No.

10. Do you use a system such as "preference points" to distribute the opportunity to draw big game permits? If yes, what has been your experience with such a system?

No.

11. In what ways do you believe hunting impacts your deer populations (ie. compensatory/additive mortality, total population size, genetics, behaviour, etc.)? What data do you have to support this?

Seasons are set to bring populations toward herd unit objectives; populations are estimated from POP II, v. 7 modelling and trend counts. Hunting can be additive, when the management objective is to reduce populations. Data support these conclusions, however natural winter mortality is also an important regulator of deer populations.

12. What do you feel are the major factor(s) limiting the deer populations, and what evidence is this based on?

Deer populations are limited politically by population objectives, using hunter harvest, and biologically by habitat constraints (ie., winter range). In most areas of the state, attempts are made to maintain herds at objectives that are below the biological maximum that could be supported in the absence of sociopolitical considerations.

13. Do you make any attempts to model deer populations? If so, please describe the model. Identify any problems.

POP II, v7 is the model currently used. Problems occur in quantifying natural mortality, interchange of animals between herd units, adequate sample sizes, and representative sampling of the deer populations.

14. What is your state or province's approach to manipulating habitat to benefit deer?

Active habitat manipulations occur on Department-owned big game winter ranges, and on public lands in cooperation with federal agencies. Active manipulations include prescribed burning, range treatments, and plantings.

15. Primary deer research efforts underway at this time (please list):

1. (completed) Movements and habitat use of white-tailed deer in the Black Hills (1989-1991)
2. Distribution and growth rate of the Little Mt. - Pine Mt. mule deer herd (1989-1994)
3. White-tailed deer movement patterns in and around Devil's Tower (1990-1993)
4. Copper Mt./S. Bighorns mule deer movements and seasonal ranges (1991-1994)

SUMMARY

A) Hunter Numbers versus Hunter Days

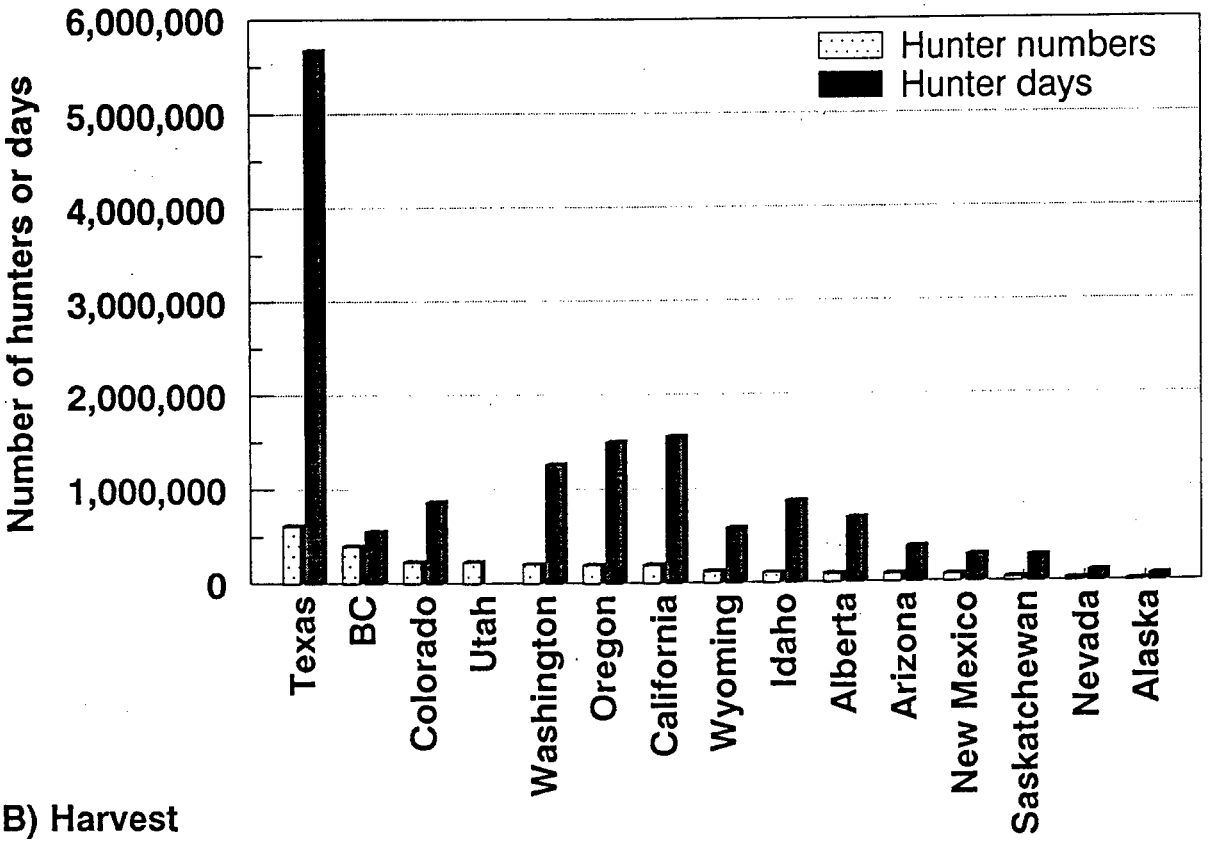
B) Harvest

C) Number of Deer a Hunter Can Legally Taker per Year

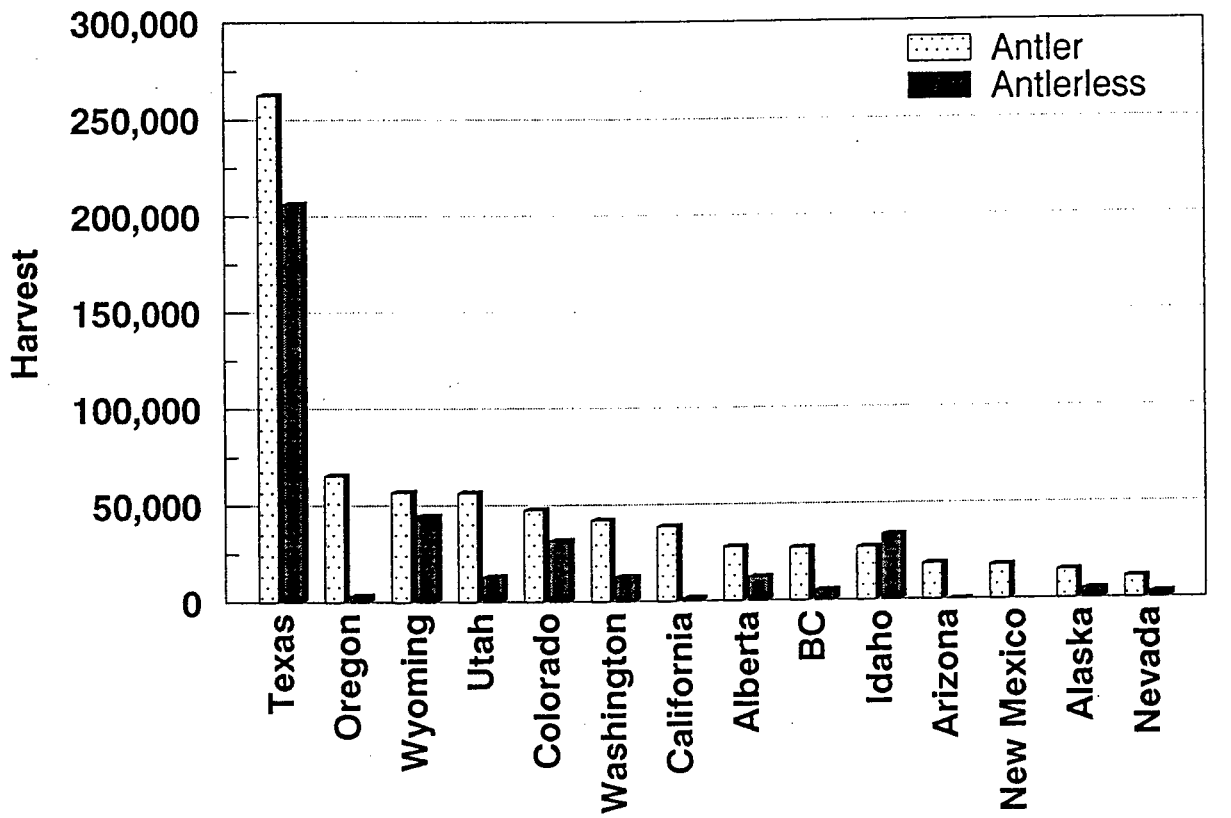
D) Factors Limiting Deer Populations

E) Summary of Deer Projects

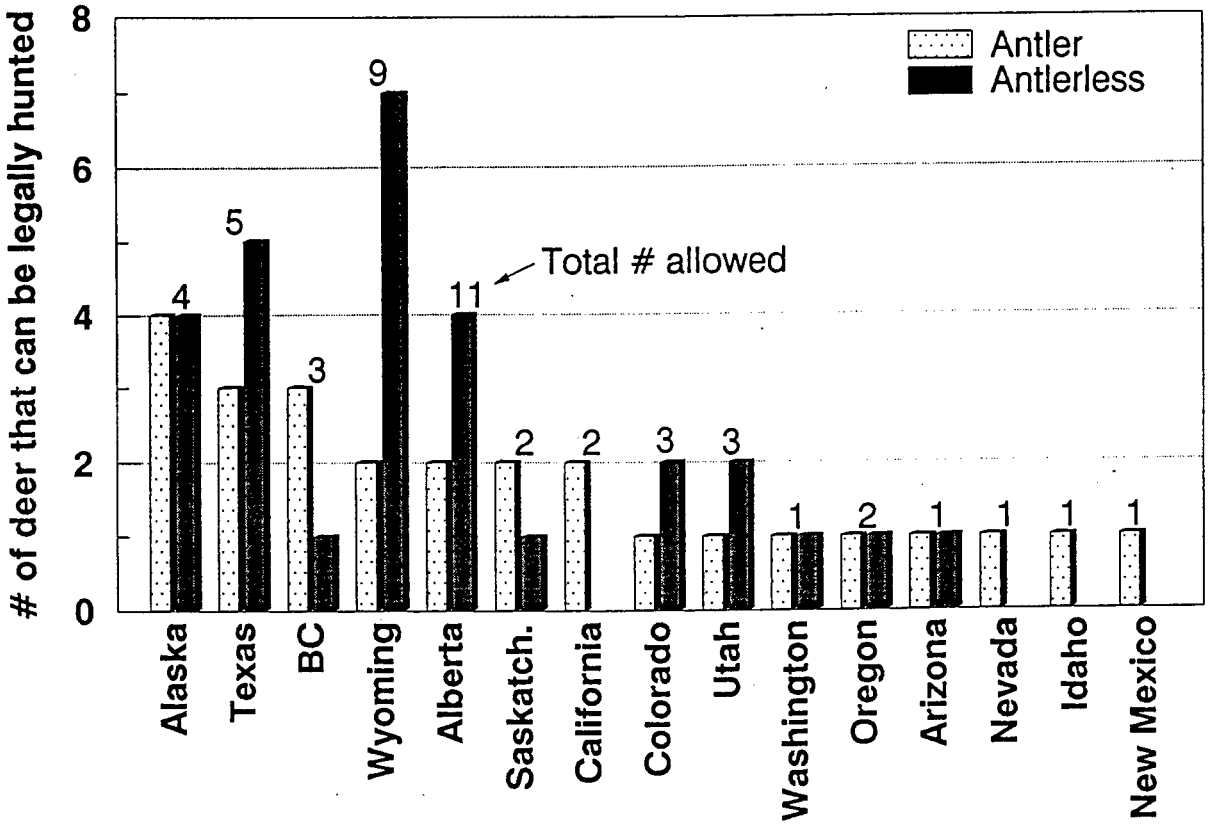
A) Hunter Numbers versus Hunter Days



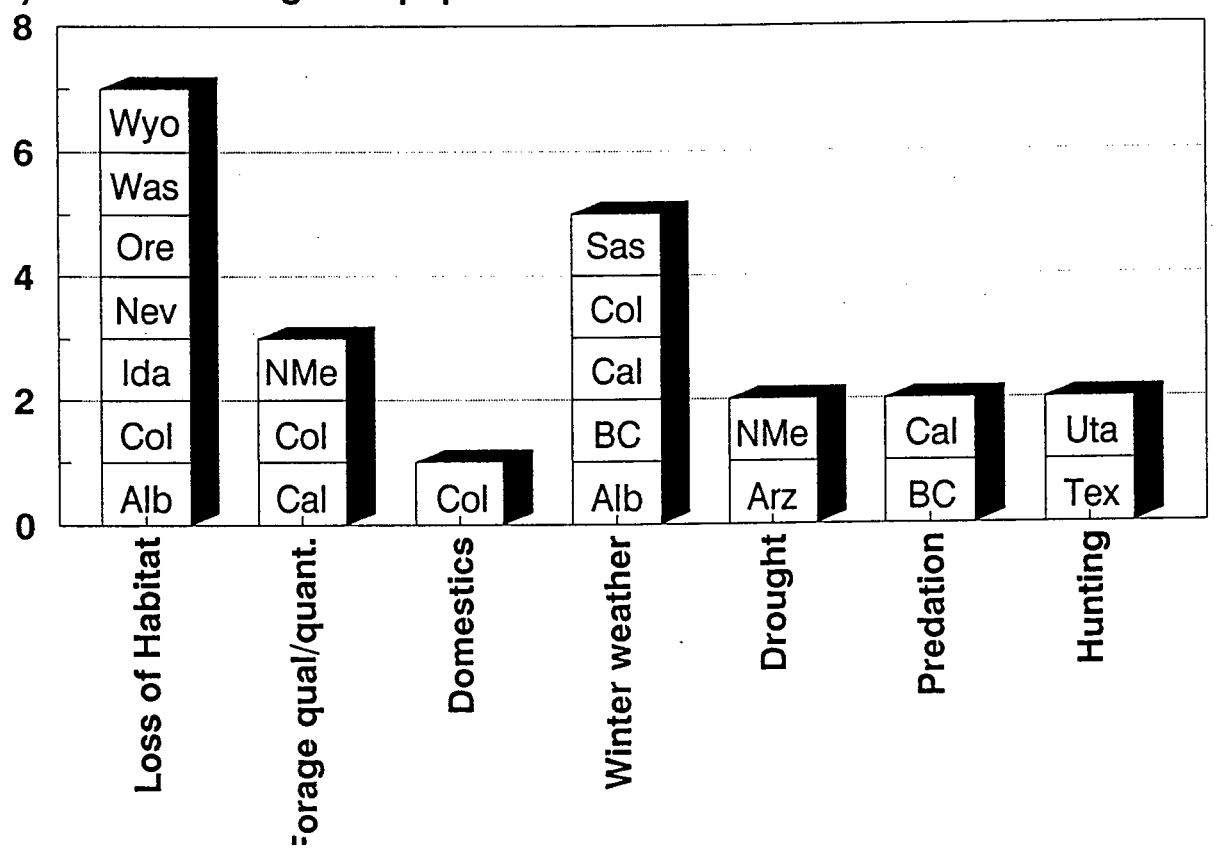
B) Harvest



C) Number of Deer a Hunter Can Legally Take per Year



D) Factors limiting deer populations



E) Summary of Deer Projects:

Alaska: *Effects of timber management on deer habitat and deer populations.*

British Columbia: *Kamloops - Inventory and mortality rates for modelling (radio-telemetry)*
Pemberton - Seasonal movements (radio telemetry)
Fort St. John - Seasonal movements (radio telemetry)

California: *1) Testing habitat capability models used by federal agencies. 2) Livestock-deer interactions. 3) Population assessment methodology. 4) ORV-deer interactions. 5) Physiological response to wildfire. 6) Methodology for evaluating physiological condition in the field. 7) Developing new population models that are less data intensive and more robust than models currently in use.*

Colorado: *Pience Basin deer mortality study (see # 11).*
Deer Fertility/ Artificial Sterilization Study-Rocky Mtn. Arsenal.

Idaho: *Mule deer sightability development, deer mortality and habitat use. Contact Jim Unsworth (208) 887-6729.*
White tailed deer mortality. Contact Pete Zager (208) 743-6502.

New Mexico: *The final report on a 16-year mule deer study is due this fall, no other research is scheduled.*

Oregon: *We do not have a major deer research project currently. We are doing an AUM equivalency study with deer, elk and cattle inside the Starkey Experimental Forest. Also deer are a part of another study investigating the effects of intensive forest management and roads on deer, elk and cattle.*

Saskatchewan: *Only one research effort ongoing (at this time):*
Investigating:
- *Fawn Mortality*
- *Reprod. performance/ fetal development*
- *Movements and habitat use*

Completion: Fall 1993

Texas: *Deer Genetics*
Deer breeding chronology

Utah: *Crop depredation -- evaluation of actual damage and procedures for measuring damage.*

Wyoming:
1. *(completed) Movements and habitat use of white-tailed deer in the Black Hills (1989-1991)*
2. *Distribution and growth rate of the Little Mt. - Pine Mt. mule deer herd (1989-1994)*
3. *White-tailed deer movement patterns in and around Devil's Tower (1990-1993)*
4. *Copper Mt./S. Bighorns mule deer movements and seasonal ranges (1991-1994)*