

THE DEERSTALKER'S POTENTIAL CONTRIBUTION TO BIG-GAME-ANIMAL RESEARCH

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SYNOPSIS

An outline of the N.Z. Deerstalkers Association Animal Research Group's activities is given. Methods used for the collection and recording of field data are described, and some conclusions as to the effectiveness of the sportsman in animal-control work are drawn from information collected over the past five years.

A comparison between this research project and the Angler's Diary Scheme is made, and emphasis is laid on the necessity for integration of such information with future Government research.

The 1954 National Conference of the New Zealand Deerstalkers' Association gave approval in principle to the setting up of an animal-research group, and a committee was formed in Wellington to organise the scheme.

The fundamental aim has always been to collect from members autopsy information about the animals they take in the field, and whilst no person has been discouraged from assisting, no matter how small his contribution may be, a definite effort has been made to gain the services of certain members who are known to have a special interest in some particular herd of game animals. The result has been a broad but admittedly inadequate coverage of all New Zealand's big-game species, and a more detailed and satisfactory coverage of the wapiti, Greenstone fallow, Mount Cook thar, Tararua red and Manawatu sambar herds.

The Field Card

The type of information requested from stalkers has been confined to that which can supply vital herd statistics, and the recording process has been made as simple as possible.

On a printed field card the following data are entered for each animal killed: the date, sex, age, state of antlers, state of udder, whether pregnant, condition, type of habitat, locality, field hours, and time of day. On the reverse of the card a section for observational data is set out and also a special panel used by those collectors who carry a steel tape and 500-gramme balance. By means of these two instruments the basic antler pattern is recorded, the more precise kidney-fat index (Riney 1955) is measured, the testicles are weighed, and the hock-to-toe leg measurement is taken for both animal and embryo (if any).

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Instruction of Collectors

On the field card are printed instructions and diagrams designed to inform the stalker of the methods he should employ. Further information is supplied on a personal basis when requested, and articles explaining the methods and the value of the data-collection scheme have been published in the association's literature from time to time. Recently a plan has been formulated to provide an illustrated lecture on data collection and game management generally, and three of the 30 branches of the association have so far heard this lecture.

The field cards, when completed, are forwarded to Wellington and the data are transferred to a punch-card system. The stalker's field card is then returned, together with a new one.

Use of the Data

To date no real effort has been made to analyse all the information coded in the base records, but nevertheless certain aspects have received attention. We now know a great deal about the sex and age structures of the annual-kill crops for certain areas, the seasonal availability of certain sex and age groups, and the types of habitat and the localities which are producing the bulk of collectors' kills.

We have eliminated for some herds much of the guesswork attached to such subjects as pregnancy and fawn-hind ratios, and comparisons of condition indices between different populations are now possible to a limited extent. The data collected over a period of three years from the Manawatu sambar herd have greatly clarified the picture of breeding and antler cycles in this deer, and several opinions that have been held for a long time have been shown to be incorrect.

A trend apparent in all sections of the data is the high proportion of immature animals in the average sportsman's kill. The systematic aging of all animals has exposed to many sportsmen such fallacies as the assumption that there is a relationship between age of the animal and the number of tines on its antlers, and the uselessness of guessing age by appearance. Many animals which even a collector would consider mature have been found, on inspection of the jaw, to possess milk teeth.

Other than at specific times when trophy antlers are sought above all else, the average stalker takes the animals that are available to him, and it is contended that this practice is New Zealand wide and is representative of Government shooting operations as well as private. Such a practice appears to produce a kill crop whose structure is heavily biased towards to the immature-age group. In some areas 70 per cent of the annual kill are young animals. It is doubtful whether this type of cropping effects a *permanent* reduction in herd numbers, and this contention is borne out by the regularity with which

such crops are taken. In some cases we are of the opinion that herd strengths are relatively high, not in spite of, but because of, this type of hunting pressure, especially when such pressure is applied spasmodically.

On the other hand, where regular and significant hunting pressure is permitted to function, there is a good chance that basic increase in a herd will be removed and that a fair proportion of fawns and yearlings will be taken during the summer months before they contribute to the impact on winter feeding areas. This will probably be the best that can be expected from normal hunting pressure, whether directed or not, as several other factors such as increasing disturbance of the animal population, seasonal movement, inaccessibility of parts of a habitat, bad weather, and denial of access all detrimentally affect the chances of significantly reducing the mature breeding section of a herd. The concept of controlled populations held indefinitely at some level below carrying capacity thus appears as a rather remote possibility.

An Animal-research Programme is a Necessity

"New Zealand must obtain the services of animal ecologists" is a justifiable cry that has been heard often over the last two years. Departmental reports, the 1958 Noxious Animals Conference, and official statements have all echoed this call, but so far little progress has been made.

If the ultimate aim of organisations charged with responsibility for wild-animal control is to obtain an accurate and up-to-date picture of New Zealand's animal populations and their status and trends, it is highly unlikely that the acquisition of a considerable number of scientists would realise this aim without large-scale assistance. If any ecologist or group of ecologists wished to obtain the figures even for numbers of wild animals killed each year, they would inevitably have to make a study of the private hunters' kills, as it is readily admitted that the latter take at least two deer to every one killed on official operations. Except for the insistence by some land-controlling authorities on the production of a tally of animals killed by hunters to whom access permits are issued, no worth-while effort has ever been made to utilise the information potential of the private stalker. No Government department has attempted to organise collection of data, though some have been keen to promote large-scale killing operations. Two scientists, T. Riney and the late J. S. Watson, were the only individuals who succeeded in stimulating private research within the New Zealand Deerstalkers Association.

In the freshwater fisheries field, the "Angler's Diary" is an accepted research tool and a good one, supplying valuable information each year and making possible such comprehensive research projects as K. Radway Allen's *Study of the Horokiwi Stream*. There is no reason

SIDE 1 ESSENTIAL DATA FROM GAME KILLED

N.Z.D.A., BRANCH

GAME SPECIES COLLECTOR'S NAME
GENERAL AREA ADDRESS

NO MEASURING INSTRUMENTS ARE REQUIRED TO RECORD DATA FOR SIDE 1.
USE A SEPARATE CARD FOR EACH SPECIES AND GENERAL AREA, AND POST COMPLETED CARDS TO WELLINGTON BRANCH, N.Z.D.A., BOX 2148, WELLINGTON.

READ THESE INSTRUCTIONS CAREFULLY AND REFER TO DIAGRAMS WHERE NECESSARY.

DATE: Enter year at head of column and day and month for each kill, thus, e.g., 12/9.

SEX: Tick "M" for male, "F" for female.

TOOTH FORMULA: Read one side of jaw only. Write "M" for a milk tooth, "P" for a permanent tooth, "E" for erupting tooth, "O" if no tooth is present in a particular position. N.B.—The third cheek tooth has three distinct ridges as a milk tooth, but it is replaced at approximately 2 years of age by a two-ridged smaller permanent. The last three cheek teeth are always permanent and are never replaced. Study diagrams A and B carefully for difference in size between milk and permanent teeth. Those of special importance lie between heavy black lines in the recording panel.

ANTLERS: Tick H column if hard, V if velvet, C if cast.

UDDER: If milk can be expressed by usual action, tick "W" (wet). If not, tick "D" (dry).

EMBRYO: Look carefully for an embryo, and tick "M" if male, "F" if female, or write "small" if sex cannot be determined. Write in estimated length, if possible.

CONDITION CLASS: Look for kidney, stomach and back fat, and if all are present in quantity write "Fat". If practically no fat is found and the animal is obviously thin, write "Poor". If condition is neither extreme, write "Mid". (See also diagram C.)

DATE	SEX		TOOTH FORMULA					ANTLERS			UDDER		EMBRYO		CONDITION		HABITAT		NAME OF		FIELD		TIME	
	19	M	F	FRONT	CHEEK	TEETH	H	V	C	W	D	M	F	CLASS	NUMBER	LOCALITY	LOCALITY	HOURS	OF DAY					

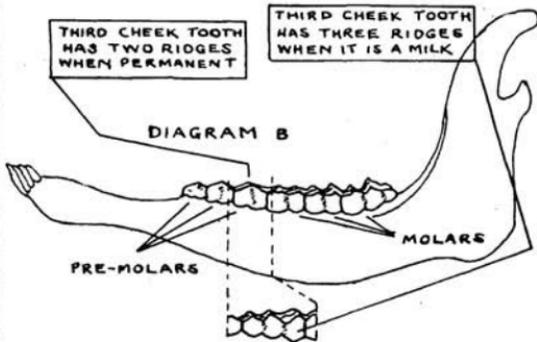
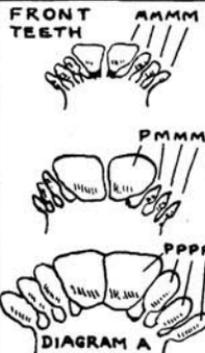
HABITAT NUMBER: Write "1" for open farm country with little or no cover; "2" for lower bush edge, slips, clearings or grass river flats in bush country; "3" for solid scrub or forest with no significant open spaces; "4" for upper bush edge or near to same; "5" for high alpine grassland with little or no cover.

LOCALITY: Write for preference the name of the watershed or mountain where the animal was killed.

FIELD HOURS: Write the number of hours spent hunting that day before the kill was made.

TIME OF DAY: Write thus, e.g., 6.30 p.m.

IMPORTANT: For this data to be of value, ALL your kills must be recorded. Return this card as soon as either Side 1 or the observational data panel on Side 2 is full.



why a "Stalker's Diary" should not become a useful research tool in New Zealand.

Deer-herd management practices in the United States are largely governed by analysis of the hunting season's kill, and statistics such as sex and age ratios are obtained from hunters. Bag limits and the duration of the "season" are often directly determined by reference to the previous year's figures.

Psychologically there is a vast difference between an official request to stalkers for help in the solution of a research problem and an official demand that they concentrate their efforts on the extermination of their sport. The former proposition makes sense to a keen sportsman and helps him to gain far more interest from his field trips – the latter is usually ridiculed as a "pipe dream" and a waste of effort. It is not necessary for any new private research scheme to be instituted – the foundations have been laid and much of the initial ground-work has been accomplished over the past five years. All that is required is the creation of a good public-relations and information system to allow full integration of private efforts with future Government research.

If it is contended that the healing of the land and the solution of wild-animal problems are paramount to New Zealand's economy, then a continuous and up-to-date picture of the status and trends of our wild-animal populations is vitally necessary for the planning of economically sound control operations. Much of the field information will have to be obtained from the private deerstalker.