

Saturna Island

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Feral Goats in British Columbia

V. GEIST

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FERAL GOATS IN BRITISH COLUMBIA

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The feral goat (*Capra hircus* Linnee 1758) has been reported on by a number of authors (Furon 1958, Van Den Brink 1957, Haltenorth and Trense 1956, Krumbiegel 1954, Wodzicki 1950, Darling 1937, Huey 1925). The main factors investigated have been its economic importance and its impact on the ecology of its habitat. The most noteworthy reports on this are Furon's (1958) and Wodzicki's (1950). However, little is known of its biology in the feral state. The authors making contributions to this effect are Wodzicki, 1950, and Darling, 1937.

The aim of this paper is to report the findings of a short study on feral goat herds found on islands in the Strait of Georgia in B.C.

METHODS

Between April, 1958, and November, 1959, fourteen days were spent on the ranges of 3 feral goat herds. Twenty-four goats were shot and the following measurements taken: total length, hind foot length, tail length, standing height, heart girth and ear length. Seventeen goats were weighed by means of a 50 pound pocket spring scale. For seven goats only the field dressed weight is available. Ten goats were examined for parasites.

Local inquiries were made to obtain the history of the feral goat herds.

RESULTS

Feral goats occur on Saturna, Galiano, Saltspring, and Vancouver Islands. Mayne Island possessed a small herd on Flaghill. This herd was introduced in 1942 but died out by 1955-56. Mt. Bruce on Saltspring Island was inhabited by feral goats up to 1957. They were introduced in 1925 and sustained a small cheese-making business until about 1940 when their former owner left them. Deer hunters are believed to be the cause of their extinction.

There are reports of feral goats on Lasquiti, Texada Islands and Mt. Tzuhalum, Vancouver Island.

THE GALIANO HERD

A small herd of goats numbering about 25 individuals inhabits the west slope of Mt. Sutall and Mt. Galiano on Galiano Island.

The goats seen were all white with the exception of one yearling and one kid. Their coats had a reddish hue. The hair is long and silky. Underwool is abundant. The horns of bucks are amber in color. They are much flattened in cross-section and show the typical *Capra prisca* winding, found in most domestic goats. In body size they are intermediate between goats from the Walker Hook herd on Saltspring and the herd on Saturna Island. Measurements are given on Table I. The race of these goats is unknown.

This herd has been in the feral state for about 40 years. They were owned by Mr. J. Cook of Galiano and released around 1920. Little is known of the past history of this small population. The inhabitants of the Island pay little attention to the goats, except for the occasional shooting for meat.

THE WALKER HOOK HERD ON SALTSRING ISLAND

This herd, numbering about fifteen individuals, inhabits a long, narrow, forested ridge, west of the Walker Hook road on Saltspring Island.

In physical type these goats are large, with a dense, coarse coat and very large horns. With two exceptions all goats seen were white. The exceptions were one black buck and a buck with reddish neck and head. This herd is possibly of Saanen and Schwarzhals origin.

Several bucks were seen with horns tending to form a circle and hence deviating from the more normal *C. prisca* type (Fig. 1). These were the largest goats encountered. The measurements of two billies shot, are on Table I.

The herd originated from goats released by Mr. J. Whimms in the late Nineteen Thirties. They have been neglected ever since, with the exception of a few times when some billies were shot for meat.

THE SATURNA HERD

The west coast of Saturna Island carries the largest herd of feral goats encountered. No definite estimate of their numbers can be made. However, there are certainly more than 60 and probably more than 100. The largest herd counted by the author numbered 37 animals. It was seen April 7, 1958. Dr. I. McTaggart Cowan, University of British Columbia, counted 54 individuals in one group in the summer of 1959. Mr. J. Campbell of Saturna counted on one occasion, 75 goats in one herd. He reported that a second herd of about equal size followed the first, but he did not count it.

These goats are very diverse in physical type. The coat colour encountered was black, gray, mottled, white, and red. The hair is usually long and coarse, but the coat lacks the thick underwool found on Galiano and Saltspring goats.

Horned and hornless animals of both sexes occur. The horn shape of bucks is very variable. Some have wide spreading, flat horns (Fig. 1); others approach the persian wild goats in horn character. These goats were the smallest encountered (Table I).

The races represented by the Saturna herd are quite undeterminable. The original stock seems to have been the English goat, and most individuals still fit the description for this race given by Pegler in "The Book of Goats". A few individuals appear strikingly like the Toggenburg strain, and it is possible that this was the race introduced by Mr. L. C. Harris. It is possible that there has been the occasional escape of Toggenburg animals from other sources.

In Saturna Island in particular, the goats share the range with semi-feral domestic sheep. Deer (*Odocoileus hemionus*) are very abundant on all Islands.

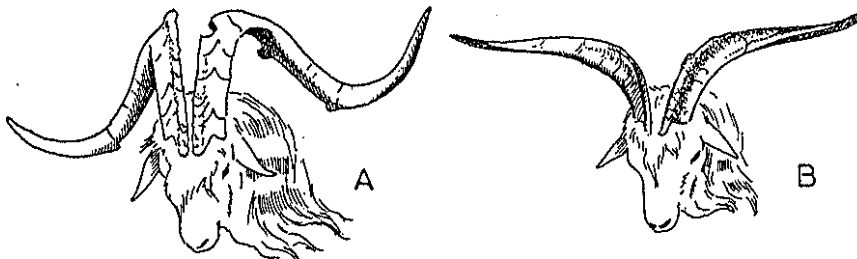


Figure 1. Two horn types found in feral goats. A. The curling type demonstrated by an 8-year-old buck from Saltspring. Viewed laterally they resemble sheep horns. Length of horns, 45 inches. B. The more typical *Capra prisca* winding demonstrated by a four-year-old buck from Galiano. Horns are flat and twist with age rather than curl.

Table 1. Measurements and Weights of Feral Goats.

Sex	Age	Total Length	Hind Foot Length	Tail Length	Standing Height	Heart Girth	Field Dressed Weight (lbs.)	Approx. Total Weight (lbs.)	Length of Right Horn		
									Circumference of Right Horn	Tip to Tip Measurement	(In Millimeters)
(In Inches)								(In Millimeters)			
SATURNA											
♂	4	51	10	5½	31	37½	79	141	500	185	650
♀	3½	55½	11½	6	33	35	92	149	550	186	550
♀	2	52	10	5	28	32	64	111	415	180	476
♀	1½	48	10	5½	25½	29	48	86			
♀	14	48½	9½	5	22½	28½	40	69	385	97	487
♀	1	42½	9	5½	24½	25	34	61	134	78	130
♀	1	43½	8½	4½	22	24½	31	55	156	75	154
GALLIANO											
♀	3½	56½	11½	7½	30	39			570	195	728
♀	5	60	11½	7	29½	43			715	195	932
♀	4	51	9½	5½	26	34			253	91	321
SALTSPRING											
♂	10	63⅞	12½	5⅞	32⅞	37½	90	168	103	198	883
♂	8	67⅞	12¼	6¼	34¼	41½	101	190	1130	219	937

TABLE I

The history of this herd goes back to the 1890's. Mr. J. Pain is claimed to have introduced the goats on their present site. The exact date of introduction is unknown. Some goats were added to the herd by Mr. L. C. Harris of Saturna around 1925. These goats came originally from Curlew Island. Mr. Harris believed them to be of the Bejornfelts race. (The author could not find a mention of this race in the literature).

BIOLOGY

Parasites and Pathogens

Ten goats were examined for parasites of which nine were found to be infected. The only exception was a nine-year-old buck from Saltspring Island. All examinations were done in the field; no animal was critically examined in a laboratory.

The nematode *Ostertagia* (most likely *O. trifurcata*) occurred in all but one goat examined. It was found at the pyloric end of the abomasum and at the junction of caecum and intestine.

Oesophagostomum venulosum was found in the caecum of seven goats. Like *Ostertagia*, it is a common parasite of the deer and is also found in domestic sheep (Cowan, 1951).

Trichuris ovis was found in three goats, occupying the anterior portion of the caecum.

Skrjabinema ovis was found only in one goat. It occurred in the large intestine close to the caecum.

Malformations and pathologies were found frequently in the goats shot. Two goats were found to have lung cysts, whose cause and origin remain unknown. One fourteen-year-old doe harboured a malignant tumor in her thoracic cavity. This tumor was about the size of a fist and lay in close proximity of the heart. This goat had formerly had some broken ribs which had healed. She was in poor condition.

One buck shot on Saltspring Island had no testes. The scrotum was reduced to a mere fold of skin. The penis was greatly foreshortened, swollen and inflamed. The buck had further an infected tooth and malformed incisors.

Overgrown hooves and badly infected teeth were seen on several goats. Two with deformed horns were seen on Galiano Island. One was an old billy whose right horn had the shape illustrated in Fig. 1b, and whose left horn formed a close spiral not unlike a sheep horn and similar to Fig. 1a. The second goat was an old nanny which had only one horn.

Breeding

Kidding seems to be concentrated in the spring. Very young kids were seen as early as February 7th. Visits to the herds in April and May revealed many kids. This agrees with Darling's findings (1937).

Three pregnant does were shot all of which were less than one year old; the youngest about 6-7 months. She weighed nineteen pounds field dressed (32 pounds whole weight). These females were taken October 8th, 1958; February 8, 1959; and September 27, 1959.

The rutting season appears to concentrate in the autumn and early winter. Some breeding activity can be seen in almost any month.

Behaviour

Males and females were present in mixed groups. Once a band of seven

billies was seen, which remains the only observed exception to mixed groups. In early spring nannies with very small kids were observed singly.

In undisturbed grazing bands, billies frequented the front of the herds. In flight the reverse appeared to hold true; billies made up the tail end of the herd.

The immediate reaction to any unusual stimulus was watching. Flight occurred shortly thereafter but was never immediate. Goats would react to rifle shots and leave, but deer standing close to the goats were never observed to react to the shots by flight, nor to the dispersing goats.

Upon disturbance goats would clump together, then remain standing in an alert position. Flight away from source of disturbance was rapid, but not heedless. After 300-500 yards of flight the herd usually stopped. Nannies occupied the downhill fringe of the herd and focused their attention downhill — not back along the flight path. Kids frequently tried to suckle while the nannies stood watching but were driven off by a swing of the head. Billies participated little in watching. Small fights broke out very frequently among them during such watch pauses.

Six lengthy fights were observed and the following fight methods noticed. 1. The opponents rose on their hind legs and smashed their horns together on descent. 2. The opponents pushed head on.

Hornless billies fought like their horned opponents. One two-year-old buck was observed fighting with a nanny. The latter fought like any male. An adult buck was seen bowling over a yearling with one quick butt.

Contrary to Darling's (1937) and Pegler's claim, goats were found to be very easy to stalk and hunt.

HABITAT SELECTION AND HOME RANGE

Goats tended to occupy the higher portions of their habitat. Saturna goats inhabit the treeless slopes and went no further than the timber edge at the top of the slope. To judge from beds and droppings, the same is true of Galiano goats. It seems that unless pressed goats do not go far into the timber.

The Saltspring herd lived entirely within timber. The top of the ridge they occupied was cleanly grazed and the shrubs heavily browsed. Though much salal (*Gaultheria shaloni*) was on the slopes of the forested ridge, the goats kept to the top and overbrowsed it.

The most striking thing about these goat herds is the limited range they occupied for years, even though other quite inhabitable areas exist nearby. The most extreme example of limited home range can be found in the Walker Hook herd on Saltspring. Their home range is about 500 x 50 yards in size. ?

DISCUSSION

Darling (1937) states, 10 years in the feral state makes a great difference to the appearance of goats. He suggests a natural selection favouring long hair and heavy horn development (to the detriment of body size). In the present study no such uniform trend was apparent.

There is evidence that the various herds originated from separate stock of distinctive types, and still retain those features. The large Saturna herd may well have been of more heterogenous origin. There is certainly no

apparent tendency towards one uniform type, even after 70 years in the feral state.

Weight comparisons of feral animals with goats under domestic care do not reveal significant differences. The standard weight for modern saanen bucks is between 165 to 180 lbs. (Mr. Campbell, B.C. Goat Breeders Association), and the U. S. Dept. of Agriculture lists weights up to 220 lbs. Calculating the weight of the two Saltspring saanen bucks taken in this study, we obtain live weights of 168 and 190 lbs. (multiply weight of carcass plus viscera by 1.08).

No weights for the English goat were found. This race is said to be smaller than the Swiss races. Two adult bucks from Saturna had a calculated live weight of about 141 and 145 lbs., respectively.

Most striking is the difference in weight of Saturna bucks and does. The large adult bucks were found to weigh up to 1.9 times as much as does. In this they resemble the angora goat (U.S. Farm Bull., No. 1203).

In the British Isles, Darling (1937) found kids to appear in January and February. On present study areas, the majority of kids seem to appear about two months later. Like feral goats in Britain, the present herds did not spread appreciably.

The cause of feral goat herds seems to be uniform. After keeping goats for domestic purposes, the owner allows the heard to become wild, as soon as no more value may be had of them. Or the goats become neglected by illness or old age of their owners. Some herds may have formed from escapees. Good potential areas to search for further feral goat herds in B.C. may be abandoned farms and homesteads on the islands in the northern parts of the Georgia Straits.

I am indebted to Dr. I. McT. Cowan for reading and criticizing this manuscript.

SUMMARY

Feral goats occur in Saturna, Galiano, and Saltspring Islands. Reports of feral goats exist for Lasquiti, Texada, and Vancouver Islands. The known history of the first three herds is recorded. The nematode parasites *Ostertagia* (trifurcata?), *Oesophagostomum venulosum*, *Trichuris ovis* and *Scryabinema ovis*, have been found in feral goats. Pathological conditions were not uncommon. Kidding seems to be concentrated in April and May, though newborn kids may be seen anytime of the year. Groups of goats contained usually both sexes. In flight, does and kids concentrated in the front. In undisturbed grazing herds, the billies led. Goats reacted to rifle shots whereas deer did not. When stopping during flight, nannies were the more watchful; they watched downhill rather than their back trail. Goats preferred the open, elevated parts of their habitat.

It is pointed out that the feral state had no apparent effect on physical type and body size of goats.—*University of British Columbia, Vancouver, B.C., March 9, 1961*

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