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567 Burrard Street, Vancouver 1, B.C.

Predator Control, in British Columbia, is primarily vested in eleven predator hunters stationed at various points within the Province. Each hunter is responsible for the controls over a designated area although Conservation Officers aid immeasurably in the programs. The overall direction is supplied by the Supervisor at headquarters. Prior to 1949, the administration in this field was quite different as a review of background will indicate.

Up to 1949, the Fish and Game Branch employed personnel, some of whom were temporary, to attempt control of the extremely high wolf populations of the central and northern portions of British Columbia. Coyotes were also very numerous in the central and southern regions and had to be considered because of their depredations. The field men were keen and conscientious but their efforts were not co-ordinated. Control areas were severely restricted in size as techniques were not adaptable enough and because of a lack of manpower. Eventually, sheepmen went out of business entirely over wide areas, cattlemen were subjected to huge annual losses, and sportsmen were very concerned. However, stock losses constituted the major complaint and resulted in ranchers demanding action* Two major changes came out of this. First, the bounty on wolves was raised and second, the present Predator Control Division was formed. The

administration was convinced that a force of experienced, fully-trained field staff under a single supervision would be far more effective than bounty payments. Unfortunately, bounties were in vogue during that time and forced the necessity of proving the worth of organized controls before any consideration could be given to the elimination of the bounty system.

The first major problem that faced the Division was to find a simple, effective method of destroying predators coupled with an adequate form of extensive distribution of the controls. Formerly, the standard approach consisted of using strychnine in large horsemeat baits. Incisions were made in the tissues and the poison was inserted. Substances were used in an effort to reduce the taste but is is doubtful if this procedure was fully effective. Strychnine and cyanide tallow pills were also extensively used. Both of these processes were slow and consumed an overabundance of time. More important, there existed the possibility of refusal or education by the use of meat baits prepared in this manner. Methods of distribution were primarily by motor vehicle or back packing although aircraft were used to some extent. In essence, the process was inadequate for the success of a widespread, intensive level of control as the area at that time involved approximately 100,000 square miles.

Sodium mono fluoroacetate (Compound 1080) was first used here during the winter of 1950-31, on a small scale, to ascertain its effectiveness as a destroyer and its value in terms of preparation. Both of these

requirements were shown by the compound and it was firmly established from the administrative viewpoint. However, the full value was not recognized by all concerned, including some of our own personnel, until as late as 1955. The public had become too accustomed to finding carcasses immediately adjacent to the strychnine bait stations and could not appreciate the effects of the new poison although wolves and coyotes were becoming conspicuous by their absence. Compound 1080 was declared to be the primary poison in all programs in 1954. Cyanide was abandoned and strychnine was used only under special circumstances.

As efficiency was increased, a second major problem increased in importance. Organized controls came into direct competition with the existing bounty. Funds were being expended in both directions with the usual wastage being incurred to pay bounties. New variations of fraud were introduced. One favourite was for people to watch the bait stations, track poisoned animals, present them and collect bounty. There were other variations of this procedure and all were widespread and popular. Controls were necessary in some areas, not from a predation point of view but because of bounty payments. Competition became so intense that an extensive program was deemed necessary to prove that bounty payments were not as effective. Consequently, baiting was increased from 1953 to 1955 when over 2,100 major poison stations were established during the winter months. This program covered about 200,000 square miles of which more than one half was wolf habitat. This action was an apparent direct contradiction of an earlier policy statement of exercising control

where it was required to prevent severe predation on game or domestic stocks. However, bounty pressures were severe enough to warrant a broadening of the meaning of the policy for a temporary period. Proof of effectiveness had to be shown in a conclusive manner. This was accomplished.

Wolf bounty payments decreased from 1,180 in 1949 to an estimated 250 in 1955* Conversely, the numbers of baiting stations increased from a few to over 2,100. There appeared to be a direct inverse correlation between these facts although there was no positive proof. In any case, everyone was satisfied and the ranchers were the first to request that the wolf bounty be abolished. This was accomplished late in 1955 > following the pattern established by the elimination of the coyote bounty the previous year. Intensive controls were maintained until 1956 when the bounty payment was considered to be a thing of the past. Since that time, control areas have been much reduced in size and the numbers of baits decreased by more than fifty percent.

Present methods of control can be roughly divided into two sections. First, the method exerted during the winter months when baiting is done over extensive areas and second, the action necessary when individual complaints are received at other times of the year. The treatment is not the same in both cases although there are similarities.

Approximately 80% of the winter baits are dropped from aircraft directly onto wolf runways or suspected, specific points. Precautions are taken to safeguard desirable species as much as possible. Each bait

is normally dropped well away from cover on the ice on lakes and rivers. It is known that some fur-bearers are destroyed during operations but as few such animals will venture more than a short distance into the open, the correct procedure of dropping at least one hundred yards from cover is considered to cause negligible losses.

Bait distribution is carried out either just following the first major ice of the season or after overflow conditions have ceased. Overflow is caused by the ice sinking under heavy snow. Water then flows over the ice and forms a slush condition which can be several feet in depth. When this condition is severe, it is necessary to wait until February or March when ice conditions are again suitable. If overflow is not serious or if the ice cover is thin, large baits can be dropped from an altitude of less than fifty feet and they will ricochet to remain on top as successful bait stations.

If more or less complete wolf control is desired within a given area, distribution patterns must include every suitable spot as it is not always possible to know the exact watershed the wolves will travel. Of course, a lower level of control will require a lesser quantity of speculative bombing. The use of aircraft is much more efficient and less costly than other forms of bait distribution if the program involves more than a few baits in the general area.

Although smaller aircraft are utilized, larger single-engine models such as the Beaver or Norseman are preferred for much of the bait distribution over the more rugged types of terrain. Either of these is capable of carrying 1,000 pounds of baits in addition to the

bait-dropper. A chute is installed in the floor of the plane with the baits stacked around it. When the selected drop-site is approached, the bait-dropper lifts the chute cover and drops the bait at the correct time. The station site is then marked on a map for a purpose that will be explained later. There is no prescribed pattern for bait dropping. The crew must follow the natural pattern established by weather conditions or by the instinctive behaviour of the animals themselves.

In general, there are usually advance notices of the intended baiting in an area but the practice has been so well established that local residents recognize the antics of the low-flying bait plane or else they realize the purpose of any meat sighted on the ice. A healthy respect has been instilled in people to appreciate the potential dangers and they cause little or no trouble by removing or disturbing baits.

The remainder of the winter baiting is done from the ground with the aid of vehicles, snowshoes, and occasionally a snow toboggan. Ground crew baiting is generally confined to readily accessible areas or private land. Bait replacement is the same although some will be placed on land rather than on ice. Coverage by this method is slow, costly, and is not conducive to the covering of large tracts of country. However, it has the one big advantage of having baits exactly where they are required so that runways are always blocked. Depending on the circumstances, ground baits are generally larger than aerial ones and will be as large as 150 pounds. Ones of this size act as attractors and predators will come in from long distances, especially if the material has had a small quantity of seal

oil placed on it. The odor of this substance has attracted wolves from three-quarters of a mile away that we know of.

Individual complaints at other periods are normally attended to by placing a bait on private or leased land. Before any poisonous or mechanical method can be utilized, the landowner or lessee must sign a form that is an agreement to absolve the Fish and Game Branch of all responsibility for any losses caused by placing traps, poison baits, or by any other technique that is used. The complainant has the right to protection for his domestic animals but as the public also has the right to be protected against danger, the methods are usually confined to the land on which the public must trespass to gain access.

A further precaution that is taken to protect the public from any form of ground baiting is that at least two warning signs must be placed well in advance of the physical location of the bait or mechanical device. This must be done whether the land is private, leased, or publically owned. If access is very open, then every point of access must be signed.

For administration purposes, each field man must submit a form report for each major poison station that is established. The form shows the type of station, type of meat used, the weight of the bait, the legal and local description, and the reason for the establishment of the station. The information is recorded and each position is represented on a map at headquarters. Some time during the late winter or early spring, all ground baits are picked up, destroyed, and the appropriate reports are submitted. These, details are not only mandatory to maintain a close

check on the baiting program but they also serve as sources of information to members of the general public.

Perhaps the most important precaution of all that is taken is the very strict regulation which governs the use of poison by the general public* No one can legally place poison for any predator unless a permit is issued by the Fish and Game Branch* The permit, if issued, does not allow the use of Compound 1080, only strychnine in small quantities. Compound 1080 is not allowed to anyone, regardless of circumstances, outside Branch personnel. Only predator hunters are allowed to use the raw substance for the preparation of baits. This precaution was deemed to be of extreme importance for all concerned.

The preparation of the baits with Compound 1080 is standard procedure. Horses are killed, butchered into six or seven large pieces, and the water solution is then injected, at two or three inch intervals, by means of a 16 ounce brine or pickling syringe. The solution consists of 1.6 grams of 1080, per hundred pounds of meat, dissolved in warm water. The normal quantity for average horses is one gallon. Following the injection, the meat is allowed to cool and "set" to prevent as much leakage as possible. It is then cut into more suitably sized pieces and either placed directly in the field or stored for future use.

Incidentally bait storage involves very important precautions. The baits are stored in concrete block or log storage sheds under lock and key and the immediate area is very heavily posted warning the public that poison is present and to interfere in any way with the baits is a serious offense.

There have been two instances of theft, from storage depots, in which the thieves ate the poisoned meat. Fortunately all of the stolen baits had been impregnated with Compound 1080 and not strychnine. Otherwise, instead of mild symptoms, deaths might have occurred.

Present methods and techniques have been proved to be very effective and it has been possible to control the larger wild canines almost at will, especially wolve³. Their trait of travelling in family or larger packs makes the species very vulnerable to a control program. In fact, it was this habit which resulted in the elimination of the species over much of its former range.

Success of control has brought yet another problem in British Columbia, There are factions which demand the destruction of all wolves and there are also those which demand that no wolves be destroyed. Somewhere between these equally ridiculous extremes lies the answer. At present, wolf control is almost complete in ranching areas for obvious reasons. Conversely, in wilderness areas, control pressures have been relaxed to an almost non-existent level despite the protestations of hunters and guides. It would appear to be the basic desire of most hunters and guides to be able to stockpile game species to the point of being ridiculous. However, the present policy will be in effect for as long as possible. Unfortunately, basic research has been lacking in the control programs to date. All action taken has been based upon practical needs, intelligent guesses, and careful planning. How long this rough form of

management can continue without research is anyone's guess. The wolf deserves an important position in the wildlife picture but his reputation is against him. The expression "the only good wolf is a dead one" is obsolete and requires discarding. Before this happens, however, education of all factions, whether against or for control, must be accomplished. This can only be based on an educational program brought about by research.

In conclusion, it must be emphasized that wolf control in this Province was instituted primarily for the benefit of ranchers. The situation has remained relatively unchanged with few exceptions. Control programs for game management purposes have been small and few in number. Some herds of the rarer big-game species have had their ranges treated for their protection. Unless circumstances are rather peculiar, normal big-game populations do not require predator control to maintain their numbers. If and when hunting pressures, or other important factors, reach the critical point, then predator control will have much more meaning in game management. It is a tool of management and should not be overlooked or underestimated.