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The Probe, Issue 4 - February 1980

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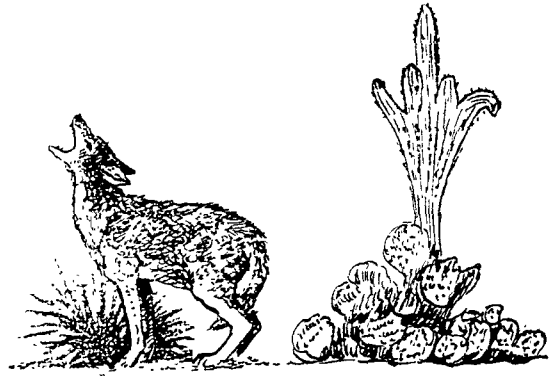
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THE PROBE



National Animal Damage Control Association

No. 4

February, 1980

THE SECRETARY'S DECISION



--- SO MUCH GARBAGE

Notice 72-2 with absolutely no supporting evidence. The predacides (1080, sodium cyanide, and strychnine) were tried and judged guilty by government propaganda, not by evidence or logic.

In a recent speech at a Predator Control Summit meeting in Texas, Secretary Andrus referred to the present ADC program as a "war on wildlife". This in itself exposes the fact that Andrus has no knowledge of the animal damage control program, wildlife management, livestock management, range management, or wildlife population dynamics. Secretary Andrus also evidently lacks concern about the livestock losses to unmanaged predators and is not aware of the real world problem.

On November 8, 1979, Secretary of Interior Cecil Andrus issued an policy on animal damage control after a two year detailed study and environmental impact statement costing taxpayers thousands of dollars. The Secretary's decision was to be based on the facts collected during the study, however, Andrus gave in to radical environmental pressures and released a purely irrational and baseless ADC decision. His decision makes a mockery of scientific wildlife management, livestock management, range management, and the economic system of this country.

The Secretary's decision is just a continuance of Department of Interior, EPA, and CEQ attempts to halt the Federal ADC program and halt animal damage control on Federal lands. These political factors affecting the ADC program in the last decade are exposed by Wade (1975) and Howard (1979). In 1972, toxicants were eliminated from use in predator control by Executive Order 11643 and EPA PR

A recent environmental impact statement on the ADC program prepared by Andrus's own U.S. Fish & Wildlife Service concluded that the ADC program does not significantly reduce coyote numbers for periods in excess of one or two years on 200,000 square miles of the West. The EIS concluded that the ADC program does not have a significant impact nor long-term adverse impact on non-target species. The EIS also indicated that the program is only cumulatively operated on 11.4 percent of the land in the West, much of which is private land. Where did Andrus get his information to make a statement such as "war on wildlife"? It seems that he is taking his cues from the environmental groups through CEQ and EPA in a planned scheme to purposely distort the facts and utilize the bureaucratic regulatory maze to shut down the effectiveness of the ADC program. These environmental groups also have other goals which are to halt grazing on Federal lands, outlaw trapping and hunting in the U.S.A. and to change wildlife management into a philosophy of protectionism.

The following data presents each of Secretary Andrus's goals, restrictions, and research directives contained in his recent decision. After each of these points is the CEQ's official position on each point as they indicated them to Secretary Andrus on August 15, 1979 in a letter signed by Acting Chairman Jane Yarn. It is evident that Secretary Andrus developed his goals, restrictions, and research directives from CEQ's recommendations which were not based on biological or economic facts.

Interior Goal No. 1

In the near term, preventive control should be limited to specific situations where unacceptably high levels of losses have been documented during the preceding 12 months. In the long term, through additional research, our goal should be to minimize and phase out the use of lethal preventive controls, including creation of buffer zones.

CEQ Recommendation

Viable wildlife populations and natural ecological systems must be maintained on public lands. Before government-sponsored selective lethal control could begin on such lands, a threshold--perhaps 5-10 percent--of verified predator losses in particular herds should be reached.

An increase of manpower and effort is needed to insure truly selective lethal control efforts. In some cases, for example, this effort may mean continuing use of generally undesirable current techniques so long as their delivery is improved to make them truly selective by devoting the necessary manpower and expertise. Under this policy the following program guidance is appropriate:

- (1) No government-sponsored control should occur in an area until predator losses are verified.
- (2) Lethal predator control should be conducted only within the immediate vicinity of the livestock loss. No buffer zone clearance of predators would or should be permitted.
- (3) Control should cease after a kill of a predator is made and should not be resumed until a new loss is verified.

NADCA Response

This goal is administratively and technically unachievable.

Livestock losses are allowed and even encouraged to occur.

Given the opportunity, most coyotes will kill sheep and goats. This fact is ignored by the decision.

Preventative and buffer control is necessary in some areas to protect sheep, goat, and many cow-calf operations.

To limit preventative and buffer control will totally break down the remaining but dwindling intensive sheep and goat production areas due to extreme predator losses.

Preventative and buffer control has kept many sheep and goat operations free of losses for long periods. This fact distorts the true potential loss picture as these operators then report no losses or problems with coyotes.

Where is the data to indicate preventative or buffer control is ineffective or environmentally hazardous ?

The field use of toxicants is desperately needed in order to adequately protect livestock and native and exotic income producing wildlife and put millions of acres of rangeland back into production.

Who decides what are acceptably high levels of loss ?

Is not each livestock operator's financial situation different in regards to the number of losses he can bear ?

What is a documented loss ?

Will the cooperative States be able to determine what are unacceptable losses since they fund a major portion of the program ?

Under the threshold concept, shouldn't taxpayers pay the ranchers for loss of privately-owned livestock killed by publicly-owned wildlife ?

Are the taxpayers willing to pay ranchers for livestock losses from predators due to the ban on toxicants and now this decision which greatly decreases the effectiveness of the control program ?

Do the taxpayers really realize the extra cost they pay as consumers in higher food prices resulting from predator depredations which could be rationally managed for the benefit of man, livestock, range, and wildlife ?

Interior Goal No. 2

Emphasize corrective control, utilizing non-lethal, non-capture methods and focusing on offending animals to the greatest degree possible.

CEO Recommendation

Lethal controls must be viewed as a last resort, to be used only after non-lethal controls designed to avoid conflicts have been diligently applied without success.

A selectivity policy essentially precludes a number of types of predator control activities that do not select for, and limit mortality to, the individual offending animal. Among the techniques now indiscriminately and widely used that do not meet this selective policy are steel traps, M-44s, denning, aerial hunting, and the attempted creation through these and other techniques of largely predator-free buffer zones.

NADCA Response

It is impossible to recommend effective non-lethal, non-capture methods which focus on offending animals if these methods do not exist. And they do not exist despite the money poured into ADC research this last decade !

This concept is an inconceivable blunder by the Secretary of the Interior.

Interior Goal No. 3

Reduce conflicts between predators and livestock by encouraging the use of appropriate livestock husbandry techniques which decrease exposure of livestock to predators.

CEQ Recommendation

Requirements for livestock management techniques that work: e.g., increased herders in sufficient number to ensure night herders and a suitable ratio of herders to sheep (as appropriate by area and time of year), shed lambing and fencing.

In those relatively few public land areas with traditionally high losses attributed to predators, careful consideration should be given either to terminating livestock grazing or to controlling the type of livestock so as to reduce the occasion for predator losses and conflicts.

NADCA Response

Shed lambing deters predation only for a time.

This is not a responsibility of the ADC program under the Act of 1931. This properly belongs to the U.S. Department of Agriculture.

CEQ is openly attempting to stop grazing on public lands.

Where is the data to indicate the effectiveness of herders in reducing losses ?

Where is the cost-benefit data for utilizing herders for predator control if other tools are restricted as under this decision ?

Where are the herders coming from ? There is no large labor pool in this country from which the needed numbers could be drawn.

Interior Goal No. 4

Expand the availability of extension services to ranchers.

CEQ Recommendation

Government consideration of demonstration livestock programs using non-lethal and selective predator control techniques, including animal husbandry practices that reduce the occasion of predator-livestock conflicts. Programs should be pursued to collect and disseminate data that would have broad utility to the livestock industry.

NADCA Response

Extension has not proven effective on public lands.

Extension-type demonstrations and programs are utilized to the extent possible and practical in the present program. Secretary Andrus has offered no practical, economical, or effective control tools which meet his criteria.

Interior Goal No. 5

Deploy resources to locations and in seasons of greatest need.

NADCA Response

The present program already does this to the best of its ability considering the available control techniques left.

These decisions must be left to professionally-trained field personnel who are knowledgeable of the problem.

Redistribution of existing efforts will create "new areas of greatest need". The goal does not take into consideration the effect of existing programs which are controlling depredation problems.

Interior Goal No. 6

Redirect and refocus research efforts to support the above goals and to achieve the long-term objective of preventing predator damage rather than controlling predators.

NADCA Response

USDI would be redirecting its research efforts from coyote management to livestock management research - - clearly a function of USDA, not U.S. Fish & Wildlife Service.

Is this the intent of the March 2, 1931 Animal Damage Control Act ?

Redirection of research away from lethal control methods will seriously impact future development of environmentally acceptable techniques for the sake of hoped for non-lethal methods.

Interior Restriction No. 1

The practice of denning should be eliminated.

CEQ Recommendation

Denning should be prohibited because it is not and cannot be made selective.

NADCA Response

Denning has historically been utilized in the ADC program as it is an economically efficient and selective tool in resolving coyote depredations. Although pup coyotes are not individually responsible inasmuch as they don't do the killing, they are the direct cause for livestock depredation by parent coyotes. Removing pups is often the only way to stop killing when adults cannot be removed. The pups are then a significant part of the "offending situation".

It is also necessary to remove dens from permanent livestock production areas, especially sheepand goat production areas. In these localized situations, extirpation of coyotes is often the logical objective.

There are no data to indicate den hunting is ineffective, inhumane, or environmentally hazardous.

Interior Restriction No. 2

The use of aerial shooting, particularly in winter, should be tightly controlled to achieve policy goal (1).

CEO Recommendation

Aerial hunting should be prohibited in the winter as being inconsistent with Presidential policy. Currently, that is when most of it is conducted even though predator losses are virtually nil and predators seen in winter cannot be assumed to be the predators eating sheep in the summer.

NADCA Response

Winter lambing and calving occurs in many parts of the country.

Preventative aerial hunting in the winter is a necessary control tool.

Predators kill sheepand goats throughout the year.

Predators can be removed from historical loss areas more effectively during the winter (in particular summer pastures) because of scarcity of vegetative cover.

Field experience indicates that predators present during the winter in areas of historical loss can be assumed to be those involved in summer depredations.

Interior Restriction No. 3

All efforts will be made to utilize traps in the most selective and humane manner possible, through such practices as tension devices, prohibition of bait sets, and frequent checks of traps.

CEO Recommendation

Bait sets should be prohibited; such sets simply attract omnivores and scavengers, and thus potentially kill the wrong animals.

All traps on public lands should have warning signs. Traps should be checked every 24 hours for humanitarian reasons.

Tension devices to prevent capture of non-target animals should be required.

NADCA Response

Tension devices are now used in cases where they are effective.

Trap signs are posted where this equipment is utilized.

Traps are checked in accordance with the specific state law and this should remain the case.

What is humane? For anyone who knows the true workings of nature, trapping is humane.

Bait sets must remain available. Precautions are already taken to increase selectivity when using bait sets.

There is no evidence to indicate trapping by ADC personnel is adversely affecting non-target species populations. Non-target animals are released if captured.

Interior Restriction No. 4

There will be no further research or development of potential uses of Compound 1080. However, research may be continued on other toxicants that do not have secondary effects, are selective, and humane.

CEO Recommendation

Prohibition of all secondary toxicants and severely limited use of M-44s. This policy should include prohibition of experimental toxicant use because experiments encourage consequences that we neither want or need.

NADCA Response

Interior, CEQ, and EPA have no evidence to indicate that 1080 as used in predator control had secondary effects. Even the obviously biased and politically oriented Cain report does not supply such evidence.

Evidence (Kun, 1979) does exist to indicate that 1080 as used in predator control has no secondary hazards is a safe, relatively selective, humane, and effective control tool. The Leopold Report (1964) stated that in the West, when used according to prescribed policy, 1080 is the best tool to use.

Executive Order 11643 and EPA banned the use of 1080 for predator control under false pretenses. The situation remains the same today.

Research was stopped on the 1080-toxic collar because it was indicating that it is a safe, target-animal selective, and humane method to control individual depredating coyotes.

EPA banned 1080 for predator control without evidence. In order to reregister a chemical that has been cancelled by EPA, new data has to be presented. In order to get more data EPA must issue an experimental use permit. EPA has rejected three such permit requests from Texas, Wyoming, and Montana, to research and evaluate 1080 for efficacy in reducing predation losses and for hazards to other species and the environment. It appears the same individuals and groups who have criticized the lack of scientific data are also instrumental in blocking such research by opposing the issuance of permits.

Andrus's ban on 1080 research and its professional use, along with his weakening of the ADC program will cause and increase the unregulated and illegal use of 1080 and possibly other chemicals by private individuals in order to protect their property.

Interior's claim that mechanical methods such as aerial hunting could replace 1080's effectiveness has not proved to be the case. In fact, increased aerial hunting has cost the ADC program considerable more money with less cost-benefit return as well as several lives and injuries, whereas 1080 as used in predator control never claimed a life.

Interior Research Directives No. 1

Emphasize the development and testing of non-lethal/non-capture control methods (such as scare devices, aversive agents and fencing) and intensive husbandry techniques and practices. Testing should be done under a variety of seasonal, geographic, and ranching conditions so that practical conclusions may be drawn for field application.

CEQ Recommendation

A substantial monetary commitment to research on, and the development of, non-lethal techniques in (a) above with a commitment to the industry to continue these efforts for five to ten years.

NADCA Response

In the past eight years since the Presidential ban on toxicants no new concept for predator depredation control has been brought into operational use. People advocating this approach do not know or respect the coyote for the ingenious animal it is. The prospect for a real break through in non-lethal/non-capture methods is quite remote.

Scare devices, fencing, herders, and aversive agents have already been researched and have provided no economical and effective relief on most livestock ranges.

Lithium chloride has been researched and found ineffective.

Komondor dogs may have a very limited success in a small number of cases on small operations. However, in one research test the dog killed the sheep.

Fencing, woven wire and electric, is now used on livestock operations where economically feasible. The Interior Department opposes fencing on Federal lands.

Herders are not economically feasible nor is there evidence they reduce predator losses significantly. Herding is impractical for a number of livestock operations.

Close herding is contrary to good range management practices.

Ranchers have been utilizing non-lethal techniques to the extent possible for years. Net wire fences with aprons have been utilized in many areas for decades. Many small operators who can pen their sheep at night do so only to have them killed during the day on the range or killed in the pen. Herders are utilized in western range operations where practical. Shed lambing is used where practical but this usually just delays predation for a time.

Interior Research Directive No. 2

Although some research, especially in the husbandry practice area, may be financed wholly or in part by USDA or others, we should be prepared to undertake a research effort on these techniques if necessary.

NADCA Response

Husbandry practice research is not a responsibility of USDI. They do not have any livestock specialists.

Interior Research Directive No. 3

In recognition of Presidential policy concerning use of toxicants, continue research on toxicants displaying species specific characteristics and delivery systems with use patterns which are selective for target individuals. Further research on Compound 1080 is to be terminated.

NADCA Response

Compound 1080 as used in the toxic collar meets all of the above criteria. There is absolutely no reason why the toxic collar with 1080 should not be registered for rancher use without over-restrictive regulations. It seems obvious that since 1080 did meet the above requirements that Secretary Andrus decided to discontinue its further research so additional supportive data could not be found. The toxic collar is an excellent control tool in some situations. But it is most useful in concert with other control methods, not as a replacement for other techniques.

Andrus' rationale of stopping 1080 research to not waste time and resources and get on with research into other chemicals does not make sense. Why stop research on a chemical we have data on and much background towards registration. An entirely new chemical will require years of research to register. When another chemical is developed will it also be withdrawn ?

The above only allows for the use of predacides in the toxic collar. This does not solve the need for a predacide to be used for preventative and corrective control in the single lethal bait or bait station delivery systems. Will there be research conducted on chemicals for these systems and if not, why not ?

Interior Research Directive No. 4

Establish a Research Advisory Committee to assure all new ideas are given fair attention and to oversee the performance and application of research efforts. This Committee should include representatives of the livestock industry, the environmental community, academia, CEQ, EPA, BLM, Forest Service, and a representative of the Office of the Secretary.

NADCA Response

It is evident from the listed agencies, the above research advisory committee will be environmentally oriented. Livestock, range, and wildlife resources will be neglected.

Professional wildlife damage managers are the most informed as to the current research needs of the operations program. Therefore, they should have major representation on the committee.

Interior Proposed Budget

Implementation of these directives and policy goals should be done at the budget level actually appropriated for FY 1980 for predator control. Based on the materials prepared for me, this level of funding will provide at least the same level of livestock protection while preserving wildlife values.

NADCA Response

Given no budget increase for FY 1980, the revised ADC program with all its restrictions will not even come close to the same level of livestock protection as last year, nor would a budget increase improve livestock protection under this revised program.

For the last two years Congress has directed the Fish & Wildlife Service to reprogram funds for an add-on for ADC. Interior has opposed this both times. The goals of Andrus do not reflect the goals of the people through the U.S. Congress. Congress approved an add-on for the more effective predator control program at that time, not for Andrus's proposed ineffective program.

It is interesting to note that in Andrus's official news release on his decision there was reference to additional funding and ADC personnel. Actually ADC field are presently being reduced. Where are the promised personnel and funding for this program? Will FY 1981 funding be comparable to FY 1980?

NADCA Animal Damage Control Program Recommendations

Andrus's decision is in violation of the Animal Damage Control Act of 1931, thus oversight hearings on the decision must be undertaken by Congress.

The Animal Damage Control program must be transferred to USDA if it is to receive the priority necessary to maintain a viable and effective program.

Based on recent findings, the use of 1080 in the toxic collar must be registered for use.

Experimental use permits must be issued for continued research on bait station and single lethal bait delivery systems.

Predator control decisions must be based on scientific fact and not purely on baseless emotional and political indecisions.

Adequate personnel ceilings and funding is necessary to permit the ADC program to provide effective wildlife damage abatement services with minimal environmental disruption.

Literature Cited

Howard, Walter E. 1979. Political and sociological aspects of wildlife damage control. Fourth Great Plains Damage Control Workshop, KSU, Manhattan, KS (in press)

Kun, Ernest 1979. Fourth (summary) report on research conducted with the long range project: Development of an antidote to fluoracetate poisoning. Univ. of California-San Francisco 4pp mimeo

Leopold, A. Starker 1964. Predator and rodent control in the United States. Trans. 29th North Amer. Wildlife & Nat. Resources Conf. 27-49pp

Wade, Dale A. 1975. Political factors in animal damage control. California Livestock News, Nov. 1975, pp12-19

An old timer is a guy who remembers when sex education was called marriage.

SEE WHAT THE PUBLIC THINKS OF ADC ?

The USFWS commissioned Dr. Kellert of Yale University to do a study* on public attitudes towards wildlife. Interviews were held with 3107 persons over the 50 states. On the ADC controversy the responses were tabulated into four groups:

1. an informed segment of the general public
2. an uninformed segment of the general public
3. members of the American Sheep Producers
4. members of National Cattlemen Associations

The sample-takers definition of "informed" respondents were those with "much to moderate knowledge of the coyote-livestock issue". The "uninformed" had "little or no knowledge" of the issue. The questions asked these groups were stated as follows: "Some ranchers claim substantial economic loss because coyotes kill their sheep. Which methods would you approve of using to correct this situation?" The replies to the questions are shown in the table on the following page. The figures represent the percentage of respondents favoring the use of a particular method.

* Kellert, Stephen R. 1979. Public attitudes towards critical wildlife and natural habitat issues. Phase 1. USFWS Grant #14-16-0009-77-056 mimeo. 138pp

	<u>Informed</u>	<u>Uninformed</u>	<u>Sheepmen</u>	<u>Cattlemen</u>
Shoot or trap as many coyotes as possible	38	44	96	94
Poisoning - least expensive method though other animals besides coyotes may be killed	8	10	75	70
Hunting individual killer coyotes only	71	77	43	52
Capture and relocate coyotes away from sheep	67	69	17	10
No killing. Pay for sheep losses from general revenues.	25	26	11	7

These data show the "uninformed" and "informed" general public hold strikingly similar attitudes, making it appear the background and experience of the "informed" segment has a strong anti-control bias. There appears only a slight difference between sheepmen and cattlemen on the need for coyote control. In my experience cattlemen were no wheres near as anxious for coyote control in the years preceding the banning of Compound 1080 for coyote control on federal lands.

The difference in attitude between those public's indirectly concerned with economic losses and the producers directly concerned is clearly shown. Poisoning is a "dirty" word (as if we didn't know !), getting the lowest approval from the general public. Three-fourths of the sheep and cattle men approve of its use.



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The impractical methods (in view of the current state of the art of coyote control) of hunting only killer coyotes or capturing and releasing coyotes away from sheep areas was highly regarded by the public. Even half of the producers were in favor of the first alternative.

It should come as no surprise that where tax monies were involved, the public was not impressed with this alternative. To their credit an even lower percentage of producers were favorable.

Another insight to ADC opposition showed significant differences between urban and rural attitudes towards

shooting or trapping as many coyotes as possible. Residents from rural areas (under 500 population) were 56% in favor of this whereas urban dwellers from cities over 1,000,000 population were only 32% in favor of this solution. As a greater percentage of the population becomes more urbanized, it is further separated from the realities of the struggle of agriculture against Nature. Unfortunately, it is fashionable then to idealize wild animals and want them to multiply without appreciation of the indirect effect animal numbers and damage have on the cost and quality of food and fiber the city-dweller takes for granted.

The eagle is a more highly-prized wildlife species than the coyote so it is no surprise the general public was 61% against permitting ranchers to shoot golden eagles killing their sheep. The sheep and cattle producers on the other hand were 81% and 72% respectively in favor of this practice. The attitude-samplers state these results "...imply a negative attitude toward predators among livestock raisers." I think this points out the samplers themselves were never directly concerned with raising livestock in competition with predatory animals.

Another series of questions investigated public attitudes as follows: "Poisoning can be effective in protecting agricultural land and livestock from wildlife damage. Which animals would you approve of using poisons on even if it resulted in killing a small number of non-endangered species?" Again the percentage favoring the use of poisons is tabulated below:

	Squirrel	Rabbit	Fox	Raccoon	Blackbird	Eagle	Rat	Bat
General Public	16	18	21	16	34	10	74	53
Producers	50	49	63	51	78	45	97	83

Thus it appears not all wild animals are equally precious to the public. Eagles, squirrels, raccoons, rabbits, etc. are too good to poison, but this compassion does not hold for rats, bats, and blackbirds. The producers on the other hand play no favorites feeling no holds should be barred in reducing economic losses to wildlife. However, they are particularly favorable to the control of rats and blackbirds which are principal sources of agricultural losses. The status of bats is a surprise as these are an innocuous species as far as North American agriculture is concerned even considering their rabies potential.

The study also showed that only 9% of the general population, 39% of the sheepmen, and 33% of cattlemen suffered some kind of significant property damage by wild animals. Counter actions taken were:

	<u>General Public</u>	<u>Producers</u>
Do Nothing	45	16
Repellents, non-lethal methods	27	5
Poisoning, lethal methods	28	48
Call game warden	0	27

When forced to resort to controls because of actually experiencing damage, 45% of the general public did nothing. What is not brought out is probably in the majority of cases, these individuals could not recognize what did the damage or did not have any idea of the methods available to cope with the problem rather than just a desire not to harm wild animals. Whereas the producers threatened with economic loss took the most direct steps they knew (lethal methods) to alleviate these losses. About one-fourth of the general public did take some action with non-lethal methods but only 5% of the producers.

Further indication of how strong feelings rather than facts enter this area was shown in the breakdown of responses from members of humane organizations. Only 40% of these would consider the use of poisons against rats and only 22% against bats. This is in comparison with the general public attitude which was 74% in favor of poisoning rats and 55% in favor of poisoning bats.

The study sums up the major variables effecting public attitudes towards animal damage control as the following:

1. Species preference
2. Ethics of control method
3. Cost of control method
4. Economic impact
5. Specificity of control
6. Ecological/environmental impacts
7. Relative worth of competing values, e.g., recreational, ecological, etc.
8. Safety of control to people and domestic animals

This gives some insight into the problems ADC faces in contacts with the public. Not all wildlife species are equally admired. Most rodents are low on the list with the repulsive naked tail rat on the very bottom. Regard increases with the size of the animal despite its actual habits and economic impact. The peak is reached when we come to birds.

Tact is putting it nicely - - but not too precisely.

OOOWW THAT SMARTS !

As you have gathered from the preceding article, much of the flack ADC gets from the public and the perennial protestors is because our methods are needlessly cruel, particularly the use of poisons. Some poisons cause animals to thrash about wildly in apparent pain. In this day of Mickey Mouse, it is difficult to find a person who doesn't believe lower animals experience pain to the same degree as humans. But even in humans the pain threshold varies tremendously between individuals. Also much of our suffering from pain is "in our heads" and lower animals do not have this handicap. Thus it was with great interest that I recently listened to Dr. H. C. Rowsell of the Pathology Department of the University of Ottawa talk objectively on a scientific analysis of pain.

Dr. Rowsell defined the "apparent" visible signs of pain in lower animals. There is an escape reaction where they attempt to get out of a situation causing pain combined usually with defensive aggression. There may also be some reflex urination and defecation. Other signs include bristling of hair, shivering, painful kicking, muscular rigidity or spasms, and possibly vocalization. One particular trait is blinking of the eyes. Electroencephalograms (EEG) have linked the cessation of eye-blinking with a flat EEG as indication by the brain waves the subject feels no pain.

In his review of various toxicant materials, Dr. Rowsell opposed the use of sulfur dioxide cartridges (we use carbon monoxide and dioxide) in gassing woodchuck burrows. When this gas comes in contact with the moist membranes

of the eyes and mouth, it is converted into sulfuric acid causing a burning sensation before the animal dies of asphyxiation.

Strychnine is considered another painful toxicant as the victim must endure a period of painful muscular rigidity before dying of asphyxiation. But he also stated that during the convulsive state in man, this is not a painful experience. The scrambling of the brain waves is accepted as an indication the animal cannot feel pain because it cannot remember the experience. However, the muscular spasms and rigidity during the convulsions can result in tenderness and pain following recovery. His negative assessment of strychnine puzzles me because strychnine is such a fast-acting toxicant, the period of pain from soreness can't possibly last for a long time.

His conclusions on AVITROL were most interesting. Though the actions of affected birds would seem to indicate extreme pain, his studies suggest the chemical does not cause pathological changes in the organs or tissues capable of causing pain or distress. It is not possible to determine exactly, but the birds did not appear to suffer behaviorially from muscle pain or weakness. They sat, clucked, and walked about normally with a normal EEG after convulsing.

Zinc phosphide is a questionable material. A small percentage of those lethally dosed would kick at their abdomens with the hind feet, indicating possible abdominal distress. Upon autopsy, irritation was found only in the first 6-8 centimeters of the intestinal tract as it comes off the stomach. Death usually occurs within eight hours.

Red squill initially produces a posterior weakness and paralysis giving the appearance that the rats are uncomfortable in their movements around the cages. However, there were no really definite signs of pain or distress. Unfortunately, death usually takes over in 24 hours and thus he concludes with this long lag phase, red squill may be an inhumane toxicant.

With admittedly insufficient observations, he concluded Vacor may also be an inhumane toxicant. The chemical acts in a relatively short time with paralysis starting in the hind end and progressing forward. The rat appears to be in distress.

A surprise to me was his support of anticoagulants as humane toxicants. The victims hemorrhage into the abdominal and chest cavities. There is no evidence of bleeding into the joints which would be painful on the basis of human experience. The time lag to death is a poor factor which might be alleviated with newer anticoagulants that kill more quickly.

Dr. Rowsell stated the greatest cause of pain appeared to be the stress caused by removal of the animal from its normal environment. Beaver and muskrats caught in underwater sets were humanely killed as no water is found in their lungs. On the other hand drowning a land animal like a cat or skunk would be more painful.

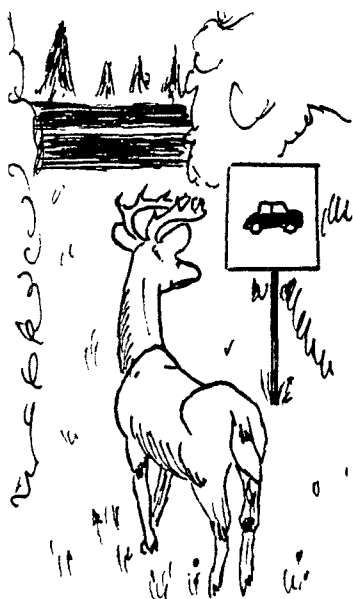
On the basis of his clinical studies, Dr. Rowsell concluded:

1. If without signs of pain or distress, lag phases of even several days may be acceptable.
2. All anticoagulant toxicants produce a humane death.

3. More research is needed before other vertebrate pesticides can be considered either humane or inhumane.
4. AVITROL is humane based on scientific evidence, but the visual signs of convulsive seizures affects public acceptance of this repellent.
5. Humaneness can be assessed scientifically using the techniques for studying euthanasia. Behavioral, clinical, and EEG observations are important in such assessments. The time it takes to lose the blinking reflex and achieve a flat EEG is most valuable in assessing humaneness.

A bikini is like a computer - - it saves lots of guesswork.

OH ! GRANDMA !HAT BIG EYES YOU HAVE ?!



When I was in Holland a couple of years back, Dr. van Troostwijk told me about reflectors along roadsides that were reducing highway incidents with deer. I didn't get a chance to see these in operation at that time, but they have recently been made available in this country (SWAREFLEX WILDLIFE WARNING REFLECTORS - \$14/pair - Strieter Corp., 2100 18th Ave., Rock Island, IL 61201).

Taking a page from Little Red Riding Hood who remarked first on the size of the orbs of the ravenous *Canis lupus* specimen masquerading in her mother's mother's nocturnal couch and nightie, some animal behaviorists claim the eyes of predatory animals have a warning effect on prey animals and also red is a universal warning color in the animal world. Thus these reflectors are designed to pick up the headlights of an oncoming vehicle and reflect red beams at right angles to the road. Mounted in pairs and shifting in angle as the car approaches, they cause the deer to pause before this threatening predator.

The reflectors are set up with a maximum spacing of 66 feet (20 m) on a straight stretch or closer on curves - - 16-33 ft. (5-10 m). These create an "optical fence" that disappears once the car has passed. In Austria where the devices were first developed, they claim an average 80 per cent reduction in deer-automobile mergers.

It's no problem loving mankind - - it's just them miserable people you work with.

Don't forget the ninth vertebrate pest conference on March 4, 5, and 6 th, 1980 at the Hilton Hotel, Fresno, California followed by the ASTM symposium on test methods for vertebrate pest control and management materials on March 7th. I'll see you there !!!!

Middle age is when your idea of getting ahead is just stayin' even.

EDITOR - Bill Fitzwater, Secretary/Treasurer NADCA