CALIFORNIA'S WILDLIFE IMMOBILIZATION PROGRAM

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Abstract. The California Department of Fish and Game's policy is that pharmacological restraint is a legitimate and valuable management tool if properly used. Administering drugs to wildlife is a technical undertaking and should be done only by persons trained to do so, if consistent results are to be obtained. About 30 Department biologists and wardens have been trained to use established techniques. A handbook was prepared for their use and contains data needed for actual field work.

INTRODUCTION

Since the beginning of wildlife immobilization by the use of drugs, many attempts have started with the philosophy "Sure I can do it, give me a tranquilizer gun and some kind of drug to put-em to sleep." Such attempts frequently end up "putting-em to sleep permanently" rather than the desired chemical restraint.

Prior to administering any compound to an animal, one should have previously expended special effort to ensure the good health of that animal. The person responsible for administering drugs simultaneously assumes responsibility for the life during the period the animal is affected by the drug. Obviously, if one is planning to assume such a responsibility, he must have an understanding of the effect of his actions. Both good and bad results have been produced by people using drugs they knew little about. Consistent results with minimum mortality can not be attained unless one is aware of the animal's normal behavior, the effect of the drug on behavior and physiology, and the possible complications produced by the drug used.

Inconsistent results from immobilization attempts in California prompted a change in policy. Rather than each man that needs the technique of drug immobilization developing his own we centralized our effort and resultant knowledge.

The intent of the policy change was to investigate the field of chemical restraint of wildlife and determine if it would be applicable to our situation and how best adapted for use by Department employees.

Immobilization techniques are needed so that birds and mammals may be caught and handled safely. Necessity of handling becomes apparent during banding, tagging, radio transmitter installation, treatment of sick or injured individuals or capture and transportation operations. Safety for both the handler and handled animal may be increased by drugging the animal.

DEVELOPMENT OF A PROGRAM

The reward of early experience was the development of a philosophy as it was soon realized that drug immobilization was no wildlife management panacea. The Department's philosophy is that drugging of animals is a valuable tool but other less severe methods should be explored prior to any tranquilization attempts. Perhaps even more basic is the fact that any handling of animals may cause injury or death. Therefore, actual animal manipulation must be considered in light of its benefit to the individual or the species. This is not to say that the risk is great but only that there is risk. A similar risk is involved in human medicine when surgical anesthesia is performed. In spite of such risks it may still be the safest means for all involved.

Considerations for animal safety include age, condition, emotional state--which are similar to human preanesthesia considerations. However, with wildlife we must also take into account many environmental factors such as terrain or escape cover, temperature, weather condition, and time of day.

To minimize danger to drugged animals we have available an oxygen resuscitation unit, an ambient air resuscitation bag, nose cone, endotracheal tubes and a surgical suture kit for treatment of wounds. Before release, gun-darted animals are given a prophylactic dose of antibiotic to prevent bacterial infections.

One of the great problems in this type of endeavor is the selection of drugs. It is very easy to describe what is desired, though no such drug exists for all animals! Therefore, it becomes a matter of getting along using a drug with the best characteristics and the fewest drawbacks. A wide variety of drugs are available and are used either singularly or in mixtures to get desired results for a given animal or species.

Generally, a desirable drug would have the following characteristics: require a small volume to produce the desired effect, cause the effect quickly, have a wide safety margin between the effective dose and the lethal dose, not cause physiological upset and produce the desired effect until it was reversed by an injection of an antagonist drug. Drugs are available that have some of these characteristics but no drug has all of them.

Perhaps the greatest single problem remaining today is that the usual time period from injection to immobilization or tranquilization is too great. Induction period, as it is called, normally is in the 5-10 minute range. Such a time lapse is of no consequence when working with captive animals, however, five minutes travel time for a free-ranging animal can frequently mean escape.

Once a particular drug/animal combination has been proven satisfactory under research conditions it can then be used as a management tool by specifically trained Wildlife-Manager Biologists.

About 30 Wildlife-Manager Biologists and Wardens in California have had specific training in the field of pharmacological restraint of animals. These people were selected from various localities so that most areas of the state were represented. The biologists were then given lecture and practical instruction in the responsibility, pharmacology and administration of drugs to wildlife. A handbook covering physical and pharmacological animal restraint, pharmacology, safety, actual procedures and reporting forms was prepared and given to those in the program (Hunter, B. F., W. E. Clark, A. Adams, DVM. 1973, Animal Restraint Handbook - Calif. Depart. Fish Game, Sacramento, 94 pp.). The book was prepared with the user in mind and was designed to ensure success by giving detailed, step by step, procedures for each drug/animal combination to be used.

To ensure full understanding and proficiency of each participating biologist, they are required to work with a member of the laboratory staff under field conditions. Actually the work in the field is done by the student under observation by the instructor. The field experience/observation must be repeated for each drug/animal combination to be used. After the student has demonstrated his competence he is then allowed to use the particular technique whenever the situation arises.

At present the number of species that we have definite procedures for and are reliable enough for resident Wildlife-Manager Biologists or Wardens to use is limited. But with more research experience we expect to have several more techniques available for field biologists to use. Thus far, we have developed or are working on techniques for: upland game birds, waterfowl, raptors, bears, mountain lions, deer, elk, bighorn sheep, burros, beavers, sea otters and foxes.

It has been only two years since the Department decided to take a serious look at the field of pharmacological restraint of wildlife. In that time we have developed the rudiments of an effective and professional program. The field biologists that were trained in drug use are satisfied with the techniques that they are using, but are anxious for additional drug/animal combinations to be developed for their use.