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NEEDS AND DIRECTIONS FOR FUTURE BLACK-FOOTED FERRET RESEARCH

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ABSTRACT

Needs and directions for future research on black-footed ferrets are discussed. Two basic research-related objectives are suggested: The first is the reconstitution of an advisory board to oversee black-footed ferret research and management. Such a board would include more researchers than at present and would be more inclusive in its consideration of research and management of ferrets. The second objective consists of several important research topics on ferrets. These should include but not be limited to: basic ecology of ferrets at Meeteetse, mortality factors, survey techniques, captive breeding studies, translocation of ferrets, and prairie dog research.

INTRODUCTION

Any discussion of research on ferrets must recognize the constraints on and assumptions of this research; our mutual efforts over the last three years certainly have been heavily influenced by them. The last three years have made us more aware of these assumptions and constraints, and have even brought some new ones to our attention. As researchers we have often been frustrated and impatient with these restrictions, yet that is the nature of working on endangered species. We have learned a lot, but we still have much to learn--especially about the ferret itself.

ASSUMPTIONS AND CONSTRAINTS

Perhaps the most important assumption that we are forced to make is that, until proven otherwise, we are studying the last known population of black-footed ferrets. This one assumption molds the framework for all our research. It means that we are constrained to work with small sample sizes, to be excruciatingly cautious every time we trap, anesthetize, handle, mark, or follow a ferret--or anything else--at Meeteetse! It forces an accountability for our actions that is not always typical of scientific investigations. And it means that data and answers are accumulated slowly and with patience. Add to all this the weight of public scrutiny and bureaucratic protection through Federal and state laws and it is easier to see why there are so many "hoops" that we as researchers have had to jump through.

Working on the only known population of ferrets means we have to consider the safety and continuity of that population foremost in our minds. We have heard of the dangers of small population sizes and inbreeding depression; of the very real need to begin trying to breed ferrets in captivity or in the wild to provide stock for transplant efforts; of the need to study and protect the population against disease, catastrophic events, or development. Thus, while we must maintain a cautious approach to research on a ferret population of limited numbers, the frailty of that population dictates progressive, scientifically sound research. And that means research conducted primarily at Meeteetse.

THE ADVISORY BOARD

Research as a discussion topic can be subdivided a number of ways; an important first step is to recognize the difference between the development of sound research programs versus the actual research itself. Development of such programs is part of research supervision and administration. If we really want to address future needs in ferret research the first thing we have to decide is who is going to guide it, who will take the lead in developing a long-term ferret research plan, and who will coordinate the various groups that participate in ferret research. I believe we still lack a strong hand at the helm of the ferret research ship. The State of Wyoming and the Black-footed Ferret Advisory Team have partly filled this role to the present and have helped direct our research, yet gaps remain. For example, we still do not have a comprehensive long-range plan for the study of black-footed ferrets.

I believe it is time to constitute a new advisory board to direct and monitor ferret research, particularly with the important questions that are fast coming at us, and that that board have as its first charge, the development of plans and priorities for ferret research. The state must realize that it is protecting an animal that has national significance and interest and thus the responsibilities go beyond state boundaries. The federal government must realize the rights and needs of state and private agencies to be involved in ferret research and management. I think we need a more open forum for discussion and a better representation of researchers on the board than we have at present, while maintaining the current representation of land managers and private interests. Furthermore, we need a greater shouldering of responsibility by both the states and federal government for where we are going in ferret research.

Such a board would address: questions of basic and applied research; the responsibilities of the agencies and individuals involved; ancillary issues like surveys and control efforts; and the fate of new populations as they are found (hopefully). Timetables for ferret research need to be developed: What needs to be done, in what order, and how long will it take to get the funds? The current fragmented approach is not sufficient to allow us to plan either the quality or the staging of research.

RESEARCH

Now I want to suggest some important topics for continuing and future research. Very little of what I suggest is original to me. I am dependent on, and thankful to, others who have voiced their ideas at various times. Some of these research topics are short-term, which is another way to say that they have immediate management applications. They are important in preserving the Meeteetse population and in allowing us to make initial plans for captive breeding, transplants, and genetic interchange. Other research topics are long-term and include those projects that require a longer study period, that address more esoteric aspects of ferret biology, or that somehow are pertinent to research goals that are farther in the future, perhaps because of manpower or funding constraints.

Basic Ecology of Ferrets at Meeteetse

We particularly need continued and expanded assessment of the ferret ecosystem at Meeteetse. For example, our data are still incomplete on the exact numbers and distribution of prairie dogs, and only now are we starting to gather information on other carnivores and raptors which may compete with (or prey on) ferrets. Studies of alternate prey species have not been started except by the analysis of ferret scats. We need to continue the capture and marking program to acquire data on ferret numbers, recruitment, and mortality. What is the breeding structure of ferrets at Meeteetse? Are there subunits or is it a panmictic group? How much genetic variation is present? What is the sex ratio at birth and at breeding? What is the average litter size and survival rate? How territorial are ferrets and does this vary seasonally? How are they distributed? Are they clumped and dispersed and how does the spatial arrangement vary seasonally? I am aware of no comprehensive vegetative work at Meeteetse that would let us describe the plant community in detail or the edaphic base on which it depends. Finally, how many prairie dogs or alternate prey items does it take to support a ferret? All these topics are vital to our understanding of what makes Meeteetse so unique (or typical?) for the continued existence of ferrets, and to finding other such areas.

Survey Techniques

The Meeteetse population is the base against which we can "test" improved methods for finding ferrets and the prairie dog towns upon which they apparently depend. We need to improve ground survey methods as well as develop aerial and remote sensing methods. I place such techniques in the "short-term" category as it is critical that we place high priority on finding other populations of ferrets. How long must we survey an area to place rigorous confidence limits on our conclusions that ferrets do or don't exist in an area? Are the signs that we look for at present (scats, diggings, etc.) reliable and how do they vary seasonally? What time of year is best to survey for ferrets, and how? Other techniques also need research and development; these include better methods of observing, marking, and tagging of ferrets, and improved ways to monitor their activity.

Mortality Factors

Studies should be expanded to assess the threat of diseases infecting the ferret population; this should include routine blood screening of captured ferrets. Other species also should be screened periodically for disease threats. We have virtually no information on direct predation on ferrets, only a few tantalizing and unsatisfactory anecdotal presumptions of predation. We need more data on what depresses the population over the winter. We are still basically ignorant on how ferrets respond to disturbance by researchers, land managers, or land developers, although at present they seem to be little bothered by these interlopers at Meeteetse.

Captive Breeding

Although we can distinguish between short- and long-range research, some long-term projects have an immediacy about them and should be started soon. An example is the need to begin research on holding ferrets in captivity. We should begin now to remove a few "test" animals to captive situations and gather the data on which future captive breeding will depend. With the exception of the data from Patuxent we have no current information on holding the animals in captivity and what their daily requirements are. Where should we do this and what kind of facility is required? Should we have more than one such facility? What ferrets do we remove from the population and when? Do we use a completely captive laboratory situation or do we go with a "semi-wild" rearing program? The captive breeding of ferrets, by whatever means, will depend on valid information from Meeteetse with respect to who breeds, when do they breed, time and nature of contact of males and females, isolation of females during birth and rearing of young, size and emergence of litters, and time of litter breakup. Much of this information will not be easy to obtain and will depend on moving our research "calendar" into the spring and early summer, rather than concentrating on the fall as we have to date.

Translocation of Ferrets

The ultimate release of ferrets into unoccupied areas, either by direct translocation or from captive-reared stock, will require information from Meeteetse on population composition, size of prey base, vegetative community and soil type, and the like. Some work is being done on modeling ferret communities and translocations but we need to move ahead on this. An extremely important component of both captive breeding and translocation is the ethology of ferrets, an area of ferret biology that remains virtually untouched. Is there a dominance hierarchy and how is it structured? What are the behavioral components of breeding? What effects do trapping and handling have on the behavior of ferrets or their positions in the population?

We will have to identify other geographic areas into which we can move ferrets. Some techniques exist to identify such areas but more work is needed. Where do we introduce them? What kind of land management and ownership scheme is best? When do we do it? How closely must the new situation mimic Meeteetse? Can we use both black-tailed and white-tailed prairie dog towns?

Prairie Dog Research

Successful translocation will depend on the actual current distribution of prairie dogs. Part of the process of locating new sites for introducing ferrets will be determining where are prairie dogs presently most abundant, where can their habitat be managed as part of a preplanned design, and where can we involve the land manager in the ferret translocation process. Opinions differ on how prairie dogs affect the ecosystems they are a part of and how they interact with domestic livestock. Current information suggests that poisons as control agents for prairie dogs are not economically feasible; this needs to be resolved and the information used as part of a management scheme when ferrets are translocated. Thus, long-term prairie dog research must be part of the plan for ferrets.

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