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WILDLIFE DAMAGE IN AUSTRALIA:

CONSTRUCTIVE CONTRASTS WITH THE UNITED STATES

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Abstract: There are numerous wildlife damage problems in Australia. The major pests include rabbits (Oryctolagus cuniculusl, foxes (Vulpes vulpes/, starlings (Sturnus vulgarisl, feral cats (felts catus/, donkeys ***(Equus asinusl,*** goats (Capra hircusl, buffalo ***(Bubalus trutralisl,*** pigs (Sus scrofal, all of which have been introduced. The dingo ICanis ***familiaris dingo/,*** classified as being a native species by most people, is the primary native animal causing problems, although others, such as kangaroos and several native bird species, are pests in some areas. The Australians spend considerable amounts of money on wildlife damage control research. The people of Western Australia take a regulatory approach to most of their wildlife problems. The concept of declaring species as pests allows the Australians to regulate what can and should be done to control these species. Australian wildlife control programs range from conducting control activities to simply advising as to what should be done. The Australians often designate areas where control should (or should not) be undertaken. This approach allows clear decisions to be made about control program expenditures and resource deployment

Introduction

There are numerous wildlife damage problems in Australia. It is interesting and instructive to compare these problems with ours in the United States. In 1984/85. I worked with the Agricultural Protection Board (APB) of Western Australia while on sabbatic leave. The purpose of my visit was to assist in expanding their vertebrate pest extension program. The APB is responsible for dealing with declared pests (animals and plants, mainly introduces/), that damage or threaten Western Australia's agricultural industry. The organization is similar to many of our State Departments of Agriculture, although the Board has a major operational approach to agricultural protection.

General Situation

As a rule, there are fewer wildlife pest species in Australia than in the United States. Major pests include rabbits, foxes, starlings, feral cats, donkeys, goats, buffalo, and pigs, all introduced species. The dingo, classified as being a native species by most people, is the major native animal causing problems. Other native species, such as kangaroos and several birds, are also pests in some areas.

The physical environment of Australia influences the wildlife damage situation in several ways. The country is harsh and many areas are quite remote, making monitoring and dealing with wildlife problems difficult. This was illustrated recently during a simulated disease outbreak control exercise where the impossibility of eradicating feral animals was identified. The identification of this problem is causing a re-thinking of action plans for handling exotic disease outbreaks involving feral animals.

Australia is prone to droughts and these affect some wildlife pests. The emu, a large flightless bird, occasionally migrates into the southwestern Australian agricultural zone

because of environmental stress-(in this case, lack of water). While these types of problems occur in the U.S., the magnitude is generally much smaller.

Compared to many parts of the U.S., Australia has relatively few crops which are significantly damaged by wildlife. For example, in Western Australia the major agricultural crop is wheat Crops such as fruits, nuts and vegetables are also grows and are damaged by wildlife. However, most wildlife damage control is done in response to damage to wheat and livestock (sheep and cattle).

While the overall size of Australia is similar to continental U.S., the country is very sparsely populated. This fact impacts wildlife damage control programs in Australia in several ways. First, labor is very limited and the target area requiring control can be larger in some situations. For example, most donkey control in northwestern Australia is done by helicopter shooting. Amassing and supporting ground crews to cover the immense areas would be virtually impossible. This also means that many control programs are conducted in areas where few people live. *This* changes the public relations situation dramatically from that which we experience in many areas of the U.S. where public scrutiny of actual control programs is not uncommon. Nonetheless, there is public controversy over wildlife damage control in Australia, too. Arguments center around many of the same issues as in the U.S.

General Approaches

Most pests in Australia are exotic (introduced) species. They are generally considered to be undesirable. Control programs are justified using this concept. Arguments over possible negative effects of control activities on the species are not persuasive as most people would view eradication as being a long-term benefit to the country. For example, the disease myxomytosis is widely used for rabbit control in Australia with little or no concern about its potential impact on the total rabbit population. If this approach eliminated rabbits altogether, there would likely be no outcry from conservation groups. Contrast this to the U.S. where most of our wildlife problems are caused by native species. Any control program that would threaten the population would undoubtedly come under substantial criticism. Another interesting sideline to the Australian system of declaring an animal a pest is that any declared animal is considered a target animal during all control operations. For example, killing foxes by secondary poisoning during rabbit baiting is quite acceptable. This is different than the U.S. where the target animal, with few exceptions, is the only animal intended for control.

Research '

Universities play a minor role, if any, in wildlife damage control research. The Australians do spend considerable amounts of research money on vertebrate pest control. In 1949, the Division of Wildlife Research was formed in CSIRO (Commonwealth Scientific and Industrial Research Organization) to investigate rabbit problems and rabbit control. Since then, CSIRO has expanded to include other wildlife and range issues but still continues work on wildlife pest problems and issues related to control The APB in Western Australia and other similar organizations throughout the country also conduct wildlife damage control research. In 1984, 9.9% of the APB's budget (about $1,000,000) went to wildlife pest control research. By contrast, California, with about 7 times the gross agricultural income, spent less than $120,000 on salaries for wildlife damage control research. No monies were designated for research projects is this area.

Regulation

Western Australia takes a regulatory approach to most of their wildlife pest problems. The concept of declaring species as pests allows them to regulate what can and should be done to control them. For example, rabbits are declared as animals to be eradicated and legal action to meet this objective has been taken. Regulations have been promulgated which state that: 1. rabbits cannot be kept as pets or for commercial purposes (they might escape), 2. any rabbits found on properties should be controlled (regardless of perceived damage), 3. no rabbits can be imported into Western Australia, and 4. only rabbits in the desert area can be shot and sold for meat (prevents perpetual harvest). This approach provides authority for the APB to require control of declared species. In cases of non-compliance, control can be conducted and the property owner billed.

Regulation of vertebrate pesticides in Australia is similar to that in the U.S. Compound 1080 is used throughout much of the country under restrictions similar to those here. Recordkeeping for 1080 preparation and use in Australia is very strict.

Extension

The primary extension program in Western Australia is conducted through the Department of Agriculture, not the University. Extension agents have some regulatory authority since the Department of Agriculture enforces agricultural regulations. -Extension personnel tend to be concentrated in regional centers, leading to much less county presence than we have in most of the U.S. Extension programs are not tied to academic research, although they do cooperate with government researchers. The APB operates an extension program on declared animals and plants through its district offices throughout the state.

Operational Control

Wildlife control programs in Australia range from conducting control activities to simply advising as to what should be done. In Western Australia, the APB manufactures predator, rabbit, and rodent baits, conducts control programs, works with growers and grower groups on area-wide control, and gives general wildlife damage control advice. They also operate a bonus (bounty) system for animals such as dingos and goats. About 6790 of their S10 million annual budget is spent on control programs.

Ideas to Consider

The purpose of this paper is twofold: 1. to give you a better understanding of the Australian wildlife damage situation, and 2. to highlight programs, methods or approaches that are instructive when contrasted to our programs in the U.S.

Research Efforts

The Australian wildlife damage control research effort is quite impressive. Research is not generally tied to soft money but is derived from state or federal revenues, or from annual assessments of landowners/ producers. This arrangement allows work to focus on both short- and long-term problems facing agriculturalists and the county and state as a whole. This system also encourages research on indirect questions such as the effects of toxic baits on nontarget species or benefit:cost analyses of area-wide control. Considerable

giant money is also derived from commodity groups such as the Australian Wool Corporation. While normally addressing applied problems, projects supported by these groups are of tea more long-term than we are used to here in the U.S.

Control Zone Concept

With many wildlife pests, the Australians tend to designate areas where control should (or should not) be undertaken. For example, the dingo fence stretching across the top of South Australia for several thousand miles serves as a line of demarcation between the dingo control program in sheep country and the no control zone in cattle country. This approach of designating control and no control areas allows clear decisions to be made about control program expenditures and resource deployment. The concept has also been used as part of the dingo conservation program (for the dingo gene pool) since the barrier farce limits control to a specific area, leaving populations is the other region uncontrolled. The Australians estimate that control is conducted on about 30% of the dingo range. The control zone concept allows them to demonstrate this quite graphically.

Total Control Concept

In South Australia, the concept of holistic rabbit control has been very successful is bringing rabbit problems under control. The concept is based on an integrated approach using rapid population reduction with a toxicant such as Compound 1080, followed by fumigation and habitat destruction, primarily to eliminate the warrens. Research in South Australia has demonstrated that use of only 1 control method is not effective for long-term population reduction. A combination of methods does lead to drastic reduction or even elimination of rabbits in certain areas. Through research efforts, holistic control strategies have been demonstrated and management decisions implementing this approach have bees made. For example, growers can use 1080 only if they agree to follow-up with such methods as fumigation, warren destruction and habitat (harborage) removal. If growers are unwilling to participate in this total control effort, bait will not be issued to them. This approach has been successful in bringing rabbit numbers is check and has reduced pesticide use at the same time.

Bounties and Commercialization

Several Australian states continue to use the bounty system, even though it does not work. The bonus system, which rewards landowners for controlling certain pests, is a variation on the bounty system which theoretically makes it more useful. There is still little or no evidence that this approach has led to reduced wildlife damage.

Similarly, commercialization of wildlife pests does not, by itself, solve the problem. In combination with other methods, however, it may be useful. In Western Australia, donkeys are shot and sold for pet meat and goats are rounded up and sold for slaughter. Both programs have been successful commercially. However, they have not caused reductions in the pest populations. If commercialization is to have a place in wildlife damage control, it must be studied carefully and used with an overall control strategy.

Evaluation of Control Programs

When the Australians conduct large scale wildlife damage control rpograms such as they do with donkeys in the Northwest, they evaluate costs and benefits by determining cost/ animal shot or animal taken out of the population As expected, as the program becomes effective, the cost per animal increases. This leads to questions concerning the effectiveness or value of the program. There is a good lesson here. We need to continue to stress that value or benefit of a control program is determined by damage potential of the remaining animas

Regulation vs. Extension

The concept of regulation vs. extension is a controversial issue. People in either system sometimes envy the other. However, there are some pitfalls with combining the two. A major problem is the tie between extension and regulation which leads to a conflict of interest when people giving advice can also issue violations. The Australians experience this problem because of the structure of their extension program. In many, but not all cases, effective programs have bees established.

Program Objectives

The Australians have the same problem we have with regard to defining objectives of control programs. They may be in a worse position since many operational programs are conducted by state organizations and, therefore, come under public scrutiny. Because of the declaration system, biological (ecological) justification for many control programs have not been formally established. This leaves the program open to criticism about needless control, excessive expenditures, and so on.

Conclusion

While the approaches to wildlife problems in Australia and the U.S. are often similar, differences in philosophies and general concepts do occur. Some of the most successful wildlife damage control approaches in Australia include:

1. Adequate support for short- and long-term wildlife damage control research.
2. Using the control zone concept to develop area wide programs.
3. Implementing a total, long-term control program. Examining these as well as other similarities and differences can lead to improvements in existing control programs and to a better understanding of wildlife damage control.

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