TOWARD CENTURY 21 - A RESEARCHER'S PERSPECTIVE

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My views on the direction of research into the 21st century are tempered by my 12 year career as a government research and management biologist followed by the past three years in the private sector. Why did I leave government? One of the major reasons was my frustration with a bureaucracy that I believed had long lost all sympathy with resource needs for effective research in favour of structured program delivery. The problem with program biology is simple- human concerns supersede biological reality.

The 1970's was 'our' age of research. In retrospect, I think it evolved more out of government excesses and a political perception of some evolving public ecological awareness rather than conscientious concern. Despite my philosophical criticisms, I sincerely doubt that we will witness any resurrection of the continental contribution to research characteristic of that era for many decades to come. During the 1970's most jurisdictions boasted active research divisions operating under a loose mandate of conducting applied biology. The direction was to collect new data which for all intent purposes was to contribute to improved resource management.

We have learned much over the past 20 years, most notably the realization that moose live a complex existence fraught with long periods of struggle broken by the odd respite of highly favourable conditions. This in itself is no particular problem except that we are resource harvesters and have high expectations of population growth or stability. In my experiences, these expectations have been difficult to attain and even more difficult to explain.

I would like to list a few of the major advancements that research has contributed to our understanding of moose.

1) INVENTORY- the application of mathematics to aerial surveys has resulted in improvements of our understanding of moose populations and habitat associations.

2) CONDITION ASSESSMENT- the development of various procedures has revealed the amplitude of the annual cycle of physiological condition. These findings have recently enlightened our perception respecting the critical importance of the summer growing season as well as winter to moose well-being.

3) POPULATION DYNAMICS- major insights as to how condition, diseases, and population structures can act to dramatically to influence population mortality and reproductive performance.

4) PREDATOR-PREY RELATIONSHIPS- major advancements in our understanding of the role wolves and bears play in limiting populations.

There have been numerous other gains, but the future is less promising. The bureaucracy had expectations for research to deliver to management. This occurred to some extent as many jurisdictions now use improved inventory systems to monitor population change and some have even incorporated the principles of selective harvest as part of their management programs. But huge amounts of dollars have been spent for minor improvements or change. The fault lies with both managers and researchers. By and large, for

reasons of basic insecurity, we still view the management of our wildlife resources in a very traditional sense. We seem to lack sufficient confidence in our level of knowledge of why populations behave like they do and resist progressive change for fear of failure and criticism. The problem is that we have been largely unable to put the whole picture together, or unable to convince those who count that we have. We as biologists tend to retreat to criticisms of our financial operating constraints rather than accept the responsibility of our positions. In addition, most government researcher/managers operate within systems which offer financial rewards for management skills, not biological excellence. Once a researcher makes the transition to management, he/she all too often seems to reject a value system of striving for the truths they once held in such high regard.

Our jobs as researchers must therefore transcend the boundaries of pure or applied research and move quickly towards education. We must educate our managers, program implementers, hunters, the general public, politicians, and the corporate world of the value of good wildlife research- timing may be critical. I sense a fundamental revolution of the public away from hunting; this was recently reaffirmed by my 11 year old daughter who wrote the following poem:

A MOMENT OF SEPARATION

A doe with her fawn
  With snow white dapples
Trot along in unison
  Beside the beryl spring

A rustle is heard.
  The doe's ears perk.
She nudges the tiny youth
  To run and hide...

But its too late.
  The spring turns from beryl to crimson
And the little body
  Is covered in blood.

The doe flees to a far off arbour
  And waits while the snickering murderer
Carries off her only true love.

The abandoned momma
  Returns to home
To dream of the fawn
  She once called hers.

Terra Stewart

It is important to realize that this child was raised in a home where the positive attributes of hunting as part of the management system have been discussed at great length. I expect to be able to affect a change in her view, but what about the millions of other North American children?

The short term consequence of this attitudinal change may be significant if the non-hunting element of society fails to support active research. Hunters have been, and are a major, and demonstrative lobby group who provide incredible support for the protection of wildlife and their habitats. However, hunter numbers are declining rapidly. **In Saskatchewan the number of white-tailed deer hunters has steadily fallen from more than 90,000 in 1972 to less than 35,000 in 1987;** a similar but less dramatic trend is characteristic for hunters of most other game species, including moose. To succeed in the mission of education, we must rely on research with unified confidence and sell it with vigor. We must adopt a universal ecological view of what a moose is and exactly what it requires not only to survive, but to survive well. I am not convinced that we can depend upon the civil service to gather the information we need to protect and manage future resources. Governments continually preach restraint and have been clarifying their stand on research and I must say it is mostly anti-research. Thus, research cannot and will not

prosper within this framework. So what kind of research do we really need in the next century and who is going to pay for it?

The need for active research will continue throughout our existence on this planet. New information must be passed to each succeeding generation of biologists to provide them with a stronger base from which to protect our rapidly depleting natural resources. There are many things we have yet to learn. Our friend and colleague, Dr. Tony Bubenik, has pioneered many of our current concepts respecting moose. Just what is all this stuff about 'umwelts'? Those of us who know Tony cannot help but fully endorse his conceptual view of the complete animal or population. The well-being of the individual is absolutely critical to population health and prosperity. So what do we know of the moose umwelt? precious little I think! We must know every detail about the behavioural basis of social well-being and the elements of the environment essential to the support of the individual or population. We spend far too much time playing numbers research games which address sustained yield theories to provide some theoretical foundation for various harvest strategies in the absence of an understanding of the basic biology of the animal. In fact we do not even collect the types of information critical to the construction of population models which would allow us to play most of these games.

So! Who pays? Who does the work? Who stands the most to gain? In Canada at least, the answer is obvious - the private sector must do substantially more.

Who is the private sector? The private sector is the consortium of public interest groups who most care about our moose, and the corporations who most impact upon moose habitats. It is a natural alliance which offers substantive mutual benefits to both parties. First, industry receives positive and deserved public recognition for their contribution to the environment through research and management efforts. Second, the public interest groups benefit from improved awareness and management of the resources for which they care. Ultimately, they can build upon increasing membership support which translates into growing acceptance of industry. It is only through this kind of cooperation that research will survive into the 21st century.

Governments can and must also play an active role by establishing research funds which can only be tapped by matched monies from the private sector. Access to that money would be limited to private sector firms and universities to provide them with the stimulus necessary to solicit corporate support. Project priorities and approval decisions should rest with a board comprised of government, industry, and public interest groups to ensure impartiality and objectivity in project selection. The objective is to establish effective organizations within every jurisdiction so productive and needed research can proceed unimpeded by the rigors of bureaucracy. The catch is, that the government contribution must come out of existing budgets, barring any breakthrough in ear-marking tax dollars back to wildlife, and can only be freed up by hard decisions and action. However, governments also stand to gain significantly by operating from a database generated from powerful research.

The researchers of the future will be private individuals who survive on their skills, initiative and creativity. They will be highly trained, productive, energetic and fulfilled. They will be active in the promotion of the work and their profession - and most of all they will be highly respected. This is the vision I have of research and of the individuals doing that work by the turn of the century.