

## RECLAMATION TO WILDLIFE HABITAT - GOALS AND DELIVERY

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### ABSTRACT

Notwithstanding regulation and competing land uses, establishing definable goals and supporting these goals with research and implementation are the two most important issues related to reclaiming land for wildlife habitat. It appears that we have taken an inordinate amount of time to deal with these issues.

### INTRODUCTION

I have a tendency to reduce issues to their simplest components. In doing this, sometimes I miss some points, but invariably I reach a decision or recommendation. When I was asked to prepare a presentation on "emerging issues in wildlife habitat reclamation" it quickly occurred to me that the product would be a list technical issues related to the generation of wildlife habitat on reclaimed lands. It occurred to me equally as fast, that such a presentation would not deal with issues, emerging or otherwise. There are only two issues on this topic: (1) establishing definable goals for habitat reclamation, and (2) the ability of the reclamation science to deliver.

### ESTABLISHING GOALS

Wildlife habitat goals are a function of desired wildlife species and numbers. This is merely a mathematical equation:

$x$  number and species of wildlife =  $X$  area and type of habitat.

The definition of the habitat in terms of vegetation, slope, aspect and juxtaposition, are known scientific parameters; add security, and the book says you have wildlife. One would think, with such a simple formula, that goals would be easy to establish. However, there is an amazing hesitancy to establish goals. I suspect the reason for this hesitancy is that once established, they must be achieved, which is fine if you are "king of the world", but, in the world of reclamation there is no such person. It stands to reason, then, that accountability is the real concern.

There are a few suggestions to deal with this problem. Firstly, set your mind to establish goals regardless of the apparent lack of data. It is amazing the number of times your "best guess" is within a few percentage points of what the data eventually supports. It is much easier to modify existing goals than to establish them.

Secondly, when establishing goals start with a number and work from it. Present the number as legitimate to other professionals. Invariably the number will be questioned, revised and a new number established, complete with rationale and support.

Finally, do not concern yourself with the ability to achieve a goal based on numbers. Again, these numbers can and should be modified. It should be clearly understood from the beginning of the exercise that the number will be modified, it is merely a question of degree.

I can appreciate, in a room full of scientists, the reaction to such an unscientific proposal. I submit, however, that wildlife habitat reclamation is indefensible without these quantitative goals. Reclaiming land to wildlife habitat must compete against other strategies. This competition does not allow for the security of time, review and research that many of us would like, therefore, you "go with what you've got". As reclamation plans go, I would much sooner be in year 5 with half-a-goal than year 3 with no goal.

Perhaps, for a moment, we can deal with habitat reclamation goals. I will be specific to Alberta and discuss the parameters.

The primary basis for all habitat goals are the wildlife species population goals. In Alberta, the basis for this is the 1984 document entitled, "Status of the Fish and Wildlife Resource in Alberta". This document gives a historic perspective, a present status, and future goal of each species or group of species. The document expresses a key point which I will read to support my previous point on quantitative goals:

"This assessment is based on the best available knowledge in 1980 and includes estimates. Some estimates are more subjective than others; also, some species are cyclic or subject to broad fluctuations, and the population status must be interpreted in terms of normal expectations. Therefore, some of the information may change as better knowledge is accumulated. Toward this and consistent with policy direction, this document will be reviewed and updated periodically. Comments are welcome and will aid in revision."

This key statement provides limits required to present legitimate goals. Simply put, it states: it's the best we have, let's go with it.

Although it may be a "long step" from provincial habitat goals to a reclamation site, the principles remain the same. Recently, in working with a major timber operator, we established populations goals for elk within their Forest Management Area. The goals were based on the provincial goal, the demand, and the inherent ability of the land to produce better habitat for this species through timber harvesting. The goal was questioned, investigated, then accepted by the operator. There is complete understanding and documentation of the many factors outside of timber harvesting that may limit

achieving this goal, equally, there is understanding and documentation of the factors that will achieve the goal. The important point is that now there is a quantifiable base from which to start.

#### HOW DO WE DO THIS FOR A RECLAMATION SITE?

First, establish the wildlife species for which you are reclaiming. In Alberta, in most situations, this will be developed between the operator and the Fish and Wildlife Division. There are many systems that have been developed to permit a methodical approach to determining these species: supply and demand, guilds, replacement in kind, and substitution are all legitimate formats. It is not correct to assume that there is, or should be, only one method of establishing this list.

Second, establish a desired number for the above species based on ability to support. It is this that is the most important part of setting habitat goals. The understanding must be that the issue is to produce habitat to support wildlife, not the reverse. For the purpose of reclamation, I can have habitat without wildlife, but not wildlife without habitat. It is important to understand that habitat is, in and of itself, a quantifiable, achievable, legitimate goal that is separate and apart from the presence or absence of the wildlife species for which it is designed.

Third, design your habitat in the same format a landscape architect would use. It is important to have this in graphics. The vegetative species list, their juxtaposition, growth rates, and other parameters are listed as specific quantitative objectives as part of the plan. One of the best examples I have seen of this format is in Dr. J.W. Thomas' book, "Wildlife Habitat in Managed Forests". This type of presentation of goals provides the link which operators, regulators, and the public can use as common ground.

Fourth, be sure to include measurements of success as a component of the plan. Too often we start programs without built-in measurements that are reviewed at given times. These measurements of success, although linked to the regulatory process, do not have to be identical to the regulatory standards. Indeed, a measure of success may be to develop or change a regulatory standard. It is clear, in the final analysis, that the objective is to achieve regulatory approval, however, in wildlife habitat reclamation measures of success are not limited. Measures of success, then, are both long term and short term, both large and small. They can include the growth success of a preferred wildlife plant or the establishment of new techniques; the development of a new regulatory standard or the introduction of a new vegetative species.

I don't believe there is a need to review different species and their habitat requirements and express these in goals. There is no shortage of applicable information and examples. The critical issue is to pursue the exercise. Several years ago in a discussion with Dr. Jack Ward Thomas, who is probably the ranking guru on wildlife habitat and timber harvesting, I was

trying to find the magic recipe that linked the work he had accomplished in the US and what we were trying to do in Alberta. Dr. Thomas explained that it is the process that is important not the product. Whatever is produced will be better than what you had before.

### THE SCIENCE

I do not claim to be, nor do I aspire to be, a reclamation expert. I am a manager. I need answers to questions, usually on short order. The science of wildlife habitat management, although new in name, is old in practice. Habitat management has taken the science of vegetation management and married it to the wants and needs of wildlife. In a very short time frame (relative to other applied sciences) habitat management has become accepted as a legitimate component of the spectrum of renewable resource management factors. Its interface with land uses such as agriculture, timber, grazing, transportation, and urban development is very influential. In the field of reclamation, however, there does not seem to be the same influence.

In its simplest form, the questions are "How much of what do I need where?" and "Will it grow?". In my judgement, the science of reclamation is only now dealing with these basic questions. I would like to believe that the point is more one of presentation of data than lack of data. In any given year, I will receive volumes of data on reclamation research, to the extent that I find it difficult to relate to the management of the issue. I am very hard pressed, to find anything I can use.

In every science, there is a crucial link between research and management. In the science of reclamation this link appears to be very weak. Surely, there can be no argument that soil is the basis of reclamation, but I find it difficult to believe that there is little requirement for research into other aspects of reclamation, such as mechanical manipulation. I find it equally difficult to believe that when I request a habitat type the answer is one of more research. It seems to me we require a little more innovation and imagination.

At this stage, I would like to make a few points clear:

1. I am fully aware of the attempts being made by some individuals to develop some very practical answers. The problem, however, is this individual imagination requires more emphasis from the science as a whole.
2. I do not expect that a manager should be required to assimilate and manipulate existing data. I believe the research arm of any science to be interpreter of the management question and the developer of the scientific answer.
3. My remarks are based on my observations of some 13 years involvement with wildlife habitat reclamation in Alberta. If these remarks are comparative to other aspects of the science, I am not aware of them.

Applied research, by definition, follows management. Perhaps it is the fault of the manager who has not asked the proper question forcefully enough. Perhaps the science of reclamation should look again at its purpose and redefine its objectives. I cannot offer a solution, but only ask the question. The one thing I know for sure from my position, is that I am not receiving from the science the information I need to formulate an answer.

#### SUMMARY

In summary, the two key issues of wildlife habitat reclamation are:

1. The establishment of habitat goals where the process is the key; and
2. A review of the reclamation science and its purpose and objectives, as it relates to wildlife habitat.



# Proceedings of a Symposium

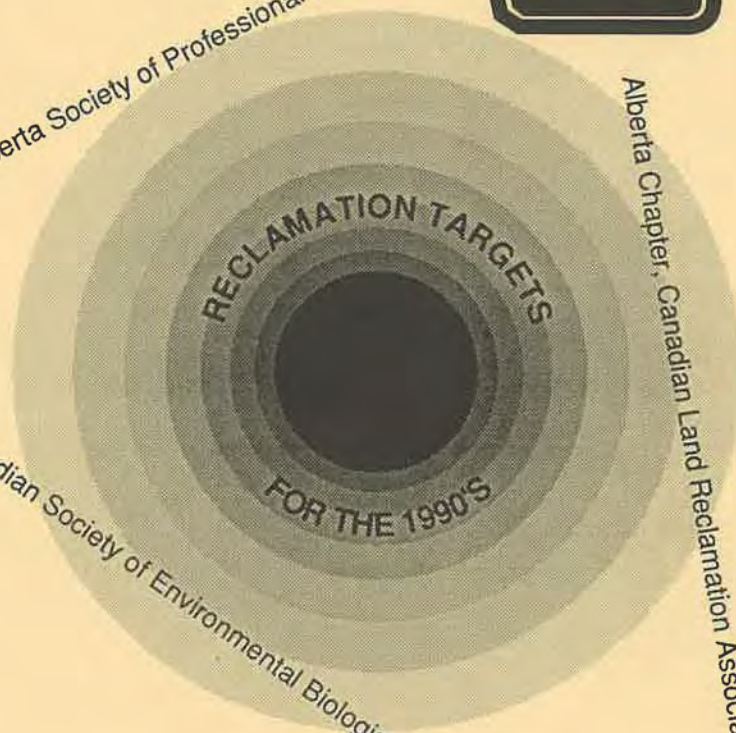


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The Organizing Committee would like to thank:

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PROCEEDINGS

Alberta Environment, Research Management Division

And a special thank you to our two guest speakers:

Dr. David Samuel, University of West Virginia who spoke on Reclamation to Wildlife Habitat in the United States

Dr. Larry Holbrook, Biotechnica International of Canada, Calgary, Alberta who spoke on Biotechnology and Biologists

- and -

to the Hon. Ken Kowalski, Minister of Environment, for delivering the opening address.

## MESSAGE FROM THE ORGANIZING COMMITTEE

Reclamation practitioners and researchers have gone a long way to solving the problems posed by such disturbances as mining, drilling and pipeline construction. The future challenge for reclamation lies in applying our expertise in other areas such as industrial site decommissioning, habitat creation and restoration, and urban design.

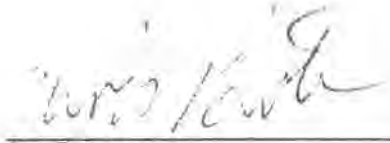
The Symposium was designed to expose participants to a wide variety of "new" areas where reclamation science could be applied. These were the "targets" referred to in the Symposium title. The speakers did an excellent job in meeting this goal. Some of the participants felt the Symposium had not provided enough information on new methods to be employed in reclaiming these new disturbance types. While this was not the goal of the Symposium it remains a valid concern that should be addressed in a future symposium.

Finally, the Hon. Ken Kowalski, Minister of Environment, encouraged all participants to get out and preach the need for, and successes of, reclamation, and indeed all environmental programs. Telling ourselves in conferences how wonderful we are is preaching to the converted. We need to let those who benefit from our labours, that amorphous group known as the public, know what we have done for them. This, too, should be the topic of a future symposium.

The papers in this proceedings have been edited and retyped into a common format. The contents of the papers are essentially unchanged from the submitted manuscripts of the authors.



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