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COMPETING INTEREST ON AGRICULTURAL LAND

Phase II: Policy Options to Resource Conflict Issues
April 26, 1987

Yukon
Renewable Resources

COMPETING INTERESTS ON AGRICULTURAL LAND

Policy Options to Resource Conflict Issues

Phase II Report

For the Department of Renewable Resources
Government of Yukon

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I. INTRODUCTION

In recent months encroachments on trapping have emerged as the most pressing of the resource conflicts generated by opening agricultural lands. This is due to several factors:

- o trapping interests, unlike interests such as wildlife, are relatively well-defined,
- o trapping interests, unlike interests such as forestry or mining, are more evenly distributed over lands with agricultural potential,
- o trapping interests are most frequently affected by agricultural development
- o trapping interests are becoming increasingly vocal and organized.

The Department of Renewable Resources has therefore directed that trapping conflicts be given priority as a separate topic in this project.

II. TRAPPING AS A FACTOR IN ALLOCATING AGRICULTURAL LANDS

The Terms of Reference and the Phase I Report have identified that trapping concerns fall into two primary categories:

1. Trapping as a factor in allocating agricultural lands.
2. Trapping as a factor in developing and managing agricultural lands.

These categories are quite different in the focus that must be brought to them: the first is a strategic level concern in which broad social tradeoffs are made; while in the second category are operational problems which are more localized, and affect how individual farms are managed.

A. THE POLICY GAP

As discussed in Phase I of this project, resource allocation tradeoffs are ultimately based on balancing social values with "objective" facts about the competing resources. Allocation questions require social input and a degree of consensus to preserve legitimacy and guard against arbitrariness or undue bias. The allocation/tradeoff process should be guided by clearly stated policies which allow all parties to know the "rules of the game" by which one resource interest is weighed and balanced against another.

At this stage, no comprehensive policies exist to guide resource allocation tradeoffs. This project does not provide a policy for valuing trapping vis-a-vis agriculture. It provides a "road map" for devising these policies by charting the questions and exploring the policy options and their implications.

It is important to bear in mind that for the most part, informed public input on these tradeoff questions has not been obtained. This work should be understood to be "value-neutral" in that it will consider that all questions and options are open for exploration - even those questions which are controversial and about which some groups have firm convictions.

B. MAPPING THE ISSUES

The first task in formulating policy is to define the issues and assemble basic information on them. This was the purpose of

Phase I. The second task is to logically relate the various issues to each other so to understand causality and chains of implications.

One method for structuring, or relating issues is with an "analysis tree". This outlining device graphically displays the issues as they relate to each other. It can aid in ensuring that issues maintain a logical structure and that no important point has been omitted. The crucial first step is to state the underlying "problem statement" - in this case, it can be written as:

> **"What are the policy options and tradeoffs when balancing trapping interests with agricultural interests?"**

The second step is to determine the "analysis question". This is a concrete form of the problem statement and is that which must be solved or clarified in order to have settled the problem. Typically this question can be phrased in more than one way, but it should convey the "bare bones" of the problem.

In considering trapping interests when deciding how to allocate land to agricultural development, the analysis question focusses on the most difficult tradeoff:

> **Are there any circumstances in which trapping concerns can cause agricultural development to be rejected on a tract of otherwise suitable land?"**

This can be restated several ways, including:

> **"Can trapping interests ever take priority over agricultural development on lands otherwise suitable for agriculture?"**

"Is agriculture considered to have priority over trapping concerns on all lands with agricultural development potential?"

These are all logically equivalent forms of what might be called the basic allocation question. They can provide a point of entry for organizing the policy questions. The analysis statement contains several implicit assumptions which should be identified:

a. That trapping and agriculture can be in conflict in some circumstances. - Actual problems and percieved problems were documented in Phase I.

b. That the degree of conflict is significant enough to influence allocation questions. - Conversations with senior staff of the Department of Renewable Resources established that they are prepared to consider the possibility of limiting agricultural development on some lands to preserve trapping opportunities. If this were not an open question, that is, if trapping were not actually an allocation factor, then this analysis would deal solely with how to moderate the adverse effects of agricultural developments on trapping: compensation, and mitigation through farm design and management.

* Note: In speculating on allocation tradeoffs between trapping and agriculture, it should be understood that only in rare circumstances would a solitary farm application severely conflict with a trapline. The cumulative effect of "whittling away" traplines by multiple applications would be more common. As Phase One reported, partial trapline loss would be more common than full loss, since few traplines lie entirely on agriculturally suitable lands. The degree - and necessity - of conflict varies from one trapline to another. It is unlikely that more than 10 lines will be significantly affected.

C. THE ANALYSIS TREE

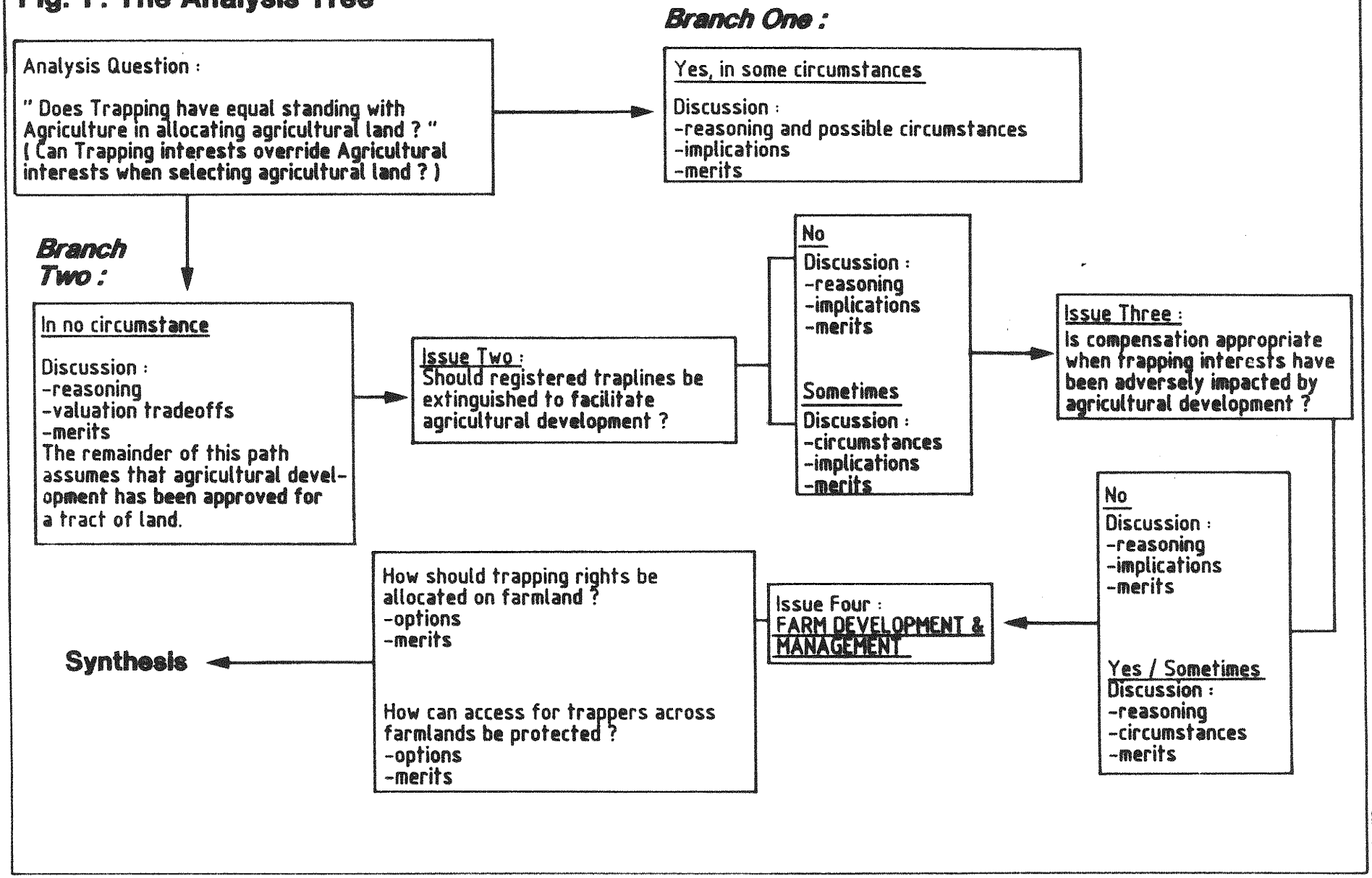
An analysis tree is drawn by asking a series of questions about the initial problem, and then about its subcomponents. The logically possible responses to each question are listed as

"branches" on the tree and explored for implications and for susidiary problems. Questions should proceed sequentially in order of decreasing generality.

The Analysis Tree for the Agricultural/Trapping tradeoffs provides our "map" of the following discussion. We will start with the allocation question and discuss the two policy responses.

Figure 1 displays an Analysis Tree for this topic.

Fig. 1 : The Analysis Tree



III. ISSUE ONE: THE ALLOCATION QUESTION

To allow that trapping could in some instances take precedence over agricultural interests in allocating land, is to state that in some instances, trapping has a higher social value than agriculture might have. As Phase I discussed, the valuation might be based on any one or combination of the following:

- o expected monetary or economic values
- o cultural or social values
- o equity, or "fairness" values
- o environmental values

Valuation tradeoffs can be resolved randomly, or they can be the product of deliberation. If the departments attempt to resolve the allocation questions without public input, they will be making value-laden judgements without guidance from the people affected. Though arguably efficient, this is fraught with both political dangers and the possibility of misinterpreting the situation. To some extent, this describes the process to date.

A regional planning process is likely to allocate resources more reliably than would purely administrative procedures. As an allocation decision, trapping interests might be dealt with in any number of ways in a planning forum. The major options are:

- o **Trapping might be given priority only on non-agricultural lands.** (This option will be explored next as Policy Option 2 of this issue, which is Branch 2 of the Analysis Tree.)
- o **Trapping might be given priority in any circumstance.** As will be noted below, this option could effectively forestall any agricultural development, and nullify the objective of creating an agricultural base.

- Trapping might be given priority in instances when its values are demonstrably higher than those of agriculture. In an administrative, or planning process, these values are difficult to measure with any confidence or consensus. In a more narrow sense, the relative economic value of trapping vis-a-vis agriculture could be determined by requiring farmers to compensate displaced trappers. Development would occur if the expected economic value of agriculture exceeded that of trapping. (Economic tradeoffs cannot address the full range of values.)

- Trapping and agriculture might be separated by zoning. This would essentially create "agricultural development districts" within which agricultural interests are given priority, and outside of which trapping and other interests would be given priority. The size and location of these districts would best be determined by a public planning process.

The first two allocation options describe zero-sum competitions. "Winner take all" policies may be clear-cut, but they can be socially divisive. The third option, though theoretically valid, might be difficult to achieve in practice. The fourth option is a compromise which limits conflict generally, although it intensifies it locally. While most trappers would be shielded, some trappers would be severely affected. Farm applicants would be more constricted in their choice of locations, but they would experience fewer obstacles within the identified districts. Based on experience to date, having no defined policy is a defacto choice of favoring agriculture over trapping on all agriculturally suitable lands.

Other Jurisdictions

In Alaska, trapping is not considered to have status equal to other land uses. Unlike forestry, wildlife, recreation, and other interests, it does not have a governmental spokesperson

at the land-planning table. It is reflected in land allocation only insofar as public input to the planning process demands that it be considered. Generally, trapping interests will be recognized in mitigation efforts, but rarely in Alaska will land be specifically allocated to trapping.

Alberta is developing northern farmland on a scale similar to Alaska. It takes a similar approach to trapping as a planning factor in its "Integrated Resource Management" program. Trapping, like forestry, agriculture, wildlife, and other interests is represented by a bureau spokesperson in the planning committee, and it is a subject of interest-group input in public participation sessions. However, its standing is not equal to those of the other resources: it could not bar agricultural development - although efforts are made to minimize the adverse impacts on it.

On deeded land in Alberta, trapping rights go to the farmer - farm development thus diminishes traplines. Access across farmland is solely at the discretion of the farmer. Alberta topography does not make access an issue - alternative routes are usually available. On grazing leases, the trapper may continue to operate, but conflicts occur with farmers. Although compensation is awarded when industrial projects impact trapping, it is unclear whether this would be awarded when the impact is caused by agriculture. (Agriculture does not pay into the compensation fund.) Alberta trappers feel that their secondary status is unfair and has produced inappropriate development decisions.

A. THE ALLOCATION QUESTION, POLICY OPTION ONE: In some circumstances, Trapping interests should override Agricultural Development interests on agriculturally suitable land.

Rationale in Yukon

In Yukon, no clear rationale for favoring trapping in a given instance has been stated. In the present administrative allocation process, it is difficult to compare economic valuations, since the monetary track record of agriculture has not been established, while the revenues from any given trapline might not reflect actual potential so much as the level of effort expended on it. If the matter were left to private sector market forces, the allocation would be resolved by the relative optimism and financial means of the agriculturalist. Since this is a climate of uncertainty, far-reaching social and economic decisions would be made on a narrow base of information and considerations.

It is most likely that the strongest case for favoring trapping in some cases could be built around social and cultural values and around equity considerations. Trapping has a historic role as a rural employer in Yukon and in most cases, it preceeded other commercial land uses. The arguments "I was here first." and "This is what life in Yukon is all about." have great emotional appeal - and about as much social validity as any other non-economic counter-argument. In a similar vein, the spectacle of eliminating one form of livelihood to make way for another is disquieting.

Environmental values can be marshalled alongside economic values in support of trapping. An exceptionally productive furbearer habitat is important as a wildlife resource - and it also offers greater revenue potential.

Any of these "soft", or unquantified arguments in favor of trapping could be applied indiscriminantly to the effect that no land would be given to agriculture. Since agriculture is an interest which must be accomodated, these arguments must somehow be limited. It is easiest to envision these questions being negotiated through an expanded form of a regional planning process which balanced socio-cultural, economic, and resource management needs.

Advantages of Policy Option One: (Seeking "best" use by weighing social, cultural, economic, and resource factors.)

1. This is a more flexible response to resource allocation competition. It provides society with the option of selecting in which cases trapping or agriculture might be favored when managing lands with agricultural potential.

2. This option can be sensitive to issues of fairness and to the need to protect cultural, environmental, social, and traditional economic values.

3. If tradeoffs are the result of democratically-based regional planning, this option can enjoy wide popular support.

Disadvantages of this Policy Option

1. Many of the values on which this response is based are difficult or impossible to measure. Applying these values can appear capricious, or they can stop agricultural development altogether, if they are emphasized too heavily.

B. THE ALLOCATION QUESTION, POLICY OPTION TWO:
In no circumstances should Trapping interests override Agricultural Development interests on agriculturally suitable land.

There are two main arguments for asserting that trapping should be subsidiary to agriculture on suitable lands.

The first notes that the supply of agroclimatically suitable lands in the Yukon is limited relative to the amount of lands suitable for fur production. It notes further that the amount of land required by agriculture is not great, and concludes that in interests of economic diversification and fairness of opportunity to farmers, agriculture should have priority on land with Agroclimatic Class 3 and 4 (some would add Class 5) suitability.

The second argument is based on an admixture of free-market individualism and utilitarian philosophy. It asserts that agriculture embodies a higher "social good" than does trapping and therefore deserves precedence in its own right. It supports this by asserting that agriculture is more economically efficient and productive, helps to convey social "progress" and stability, and is in several ways more socially legitimate on suitable lands. This last point has several emotional values: that agriculture is a historically inevitable improvement in frontier areas, that it conforms to the accepted pattern of Canadian development, that it meets the longing of many Yukoners for a self-sufficient rural lifestyle.

These arguments can be blended by some advocates. These, like the arguments favoring trapping, are based on unquantifiable values and life-style choices.

Advantages of Policy Option Two: (Allocating all agriculturally suitable lands to farming.)

1. This is a clear-cut allocation response. Not everyone may like it, but it eliminates need for further choices.

2. This is the firmest response to the stated goal of developing agriculture, and to the recognized limits on the amount of agroclimatically suitable land.

3. This can have great emotional and political appeal to the unknown percentage of people who profess a desire for rural, agricultural life.

Disadvantages of this Policy Option

1. This response is inflexible to other social, economic, and resource values.

2. The economic valuation, like the social benefits valuation on which this is based, are difficult or impossible to measure at present.

Option Two Sub-Strategy: Competitive Bidding as an Allocation Mechanism

An additional possibility for resolving an allocation question would involve competitive bidding. This would emphasize a straight economic valuation of the market worth of alternative uses of the land. The assumptions for this process are as follows:

a. Society has the right to sell, auction off, or otherwise dispose the use of all land resources. For commercially exploitable resources, no person can claim right of free access unless it is granted by society.

b. Society has received no payment for trapping rights and has given to the trapper no guarantee of permanent tenure. Under the Wildlife Act, the trapper has a temporary monopoly to harvest fur. Under law, society has reserved the right to reallocate or even extinguish trapping rights without compensation if this is determined to be in the in the public interest. (Trapping permits are for five years, renewable at society's option.)

c. If a trapline has economic merit relative to a competing use for the land, someone should be willing to purchase the trapping rights from society. This concept might be applied to two different questions.

   i. If agricultural development is mutually exclusive with operating the registered trapline in a given area, then in a competitive bid, the trapper could purchase permanent trapping rights - and thereby extinguish agricultural development rights. A higher bid by an agricultural interest would extinguish the trapping rights.

   ii. If trapping and agriculture are not mutually exclusive, custody of farm trapping rights could be settled by auction. Presumably, if the farmer truly wanted to trap on his farm, he would be willing to pay for the privilege. The trapper could accept and pocket the bid - thereby relinquishing rights to trap on the farm; or he could reject it and retain trapping rights.

Discussion

Competitive bidding is probably a poor means of deciding whether to allow agricultural development of a given tract. Its logical premise is that agriculture can proceed - if the price is right. Its "willingness to pay" criteria conforms to classical economic theory, but it would cause inequity. The trapper in an agriculturally interesting area would be faced with a huge cost of remaining in business, which his colleague who trapped a mountainous line would never incur. The same inequity would hold for farm developers: not all would face determined bidding from a resident trapper.

The very premise of having trappers and farmers bid in mutually exclusive cases is faulty. If the idea is to determine by market means the most economically beneficial use of the land, then agriculture should actually bid against the combined values of all other land uses which are compatible with trapping on the land in question. It is clearly impractical or impossible to include tourism, recreation, wildlife habitat, and forestry interests in a bidding scheme. In this light, bidding becomes absurd.

Bidding might have more merit as a means of freely transferring registered trapping rights from the trapper to the farmer on farm land. (The concept might apply to titled, lease, or even option land.) This response has two premises:

a. that registered trapping rights will remain in force on farmlands, and that trappers will have free access to exercise these rights unless otherwise extinquished;

b. that society is willing to relinquish its perogative of allocating trapping rights by permitting permanent disposals of rights.

If both premises are accepted, the principle of bidding in this limited context may be an efficient, fair transaction between willing sellers and willing buyers.

The analysis so far has explored the principle arguments on either side of the basic allocation question: "In case of conflict, should trapping interests ever exclude agricultural interests on agroclimatically suitable sites?" It should be evident that arguments which force a conclusion do not exist. The ultimate policy choice will be based on "softer," value-laden reasoning.

The remainder of the analysis will examine the subsidiary questions which arise after an allocation decision has been made to proceed with agricultural development on a registered trapline.

IV. ISSUE TWO: RETIRING TRAPLINES

The issue of extinguishing registered trapping rights rises once it is conceded that agricultural development can proceed on a Registered Trap Line area. In some instances, the trapper has proposed that all or part of the line be retired with some form of compensation. In other instances, retiring all or part of a trapline might be a way of reducing conflict if substantial portions of the line overlap with agricultural lands which are to be developed. The decision might take several forms:

- A decision to retire a trapline may occur as an outcome of community planning in which society "zones" an area for agriculture, residential, or urban development. Any of these uses can conflict with trapping and might suggest that the rights be extinquished. As a deliberate, consultative decision, this act will not avoid conflict, but it will minimize its effects, and it will have broad consensus.

- Alternatively, a trapline might be retired by administrative fiat, based on the judgements of government employees. Even if guided by clear criteria, this may be criticized as undemocratic and arbitrary.

- A decision to retire a trapline may be reached by default, if agricultural developments incrementally occupy a significant portion of the line and inhibit the trapper's livelihood. This outcome might be the most contentious of all, since the decision will be reached only after the issues have drifted into an acute stage.

- A trapline might be retired at the request of the registered trapline holder.

Extinguishing trapping rights is based on the premise that trapping and agriculture cannot coexist at some level of agricultural development. Are conflicts between trapping and agriculture indeed so significant to warrant retiring a trapline?

In principle, agricultural lands need not eliminate commercial furbearer harvests. The actual mix of species harvested might well change - marten, for example, might be supplanted by fox or lynx taking advantage on new opportunities on the margins of agricultural land. More significant are the attitudes of farmers and trappers.

To some farmers, giving trappers the right to operate on their farm is a loss of control over the land which they are unwilling to accept. In addition to the issue of control are concerns for the safety of livestock, pets and children. This attitude is strongest for titled land, but it is applied by some to any land which is actively used for agriculture.

Similarly, some trappers feel that the constraints of operating on farmland, along with the shift in accustomed trapping habits and practices, are not worthwhile compared with operating in a wild environment. The actual loss of income which might be caused by habitat loss or change can only be speculated at this stage. The attitudes of farmers and trappers may be as significant as the change in furbearer production. The blanket solution of extinguishing registered trapping rights in an area imposes a final, simple, and clean solution to problems which might otherwise remain contentious.

The main argument against extinguishing registered trapping rights rejects the premise that trapping and agriculture have intractable conflicts. It would allow the registered trapper access to exercise trapping rights on grazing, option, lease, and even titled agricultural lands, subject to reasonable measures to protect farm property. This, along with other "multiple use" management possiblities is probably most easily implemented on grazing leases and option lands. The incidence of conflict is likely to increase on more intensively used agricultural lands.

A related argument is that society loses the economic contribution of the renewable fur harvest in an agricultural district if the trapping rights are revoked. If society intends to transfer the trapping rights to the farmer, one could argue that they could have continued to have been exercised by the registered trapper.

Advantages to retiring Registered Traplines

1. In the event of conflicts - real or perceived by either party - this imposes a final, clearcut resolution.

2. This is easy to administrate.

Disadvantages to Retiring Traplines

1. This can be seen as an unfair or needlessly drastic solution if the trapper is willing to exercise trapping rights in an agricultural environment.

2. A sub-strategy is to take a longer view and delay development, retiring a trapline after the trapper has lost interest or is no longer alive. This would preclude transfering the line.

V. POLICY ISSUE THREE: COMPENSATION

The question of compensation arises if trapping rights are extinguished wholly or in part, by administrative withdrawal or by defacto loss of habitat. Mr. Al Hodgson, in a separate but allied project has prepared a proposed policy for compensating trappers and outfitters who are adversely affected by developments - including agriculture ("Government Policy Paper: Interim Policy on Compensation For Trappers and Outfitters", for the Department of Renewable Resources.)

The purpose of this section is not to duplicate Hodgson's work, but to examine the policy questions on which the principle of compensation is based. Treating compensation as an open question, this sets aside, for purposes of discussion, the existing compensation provisions of the Wildlife Act.

Compensation is a payment of anything given as an equivalent to make amends for a loss. Payment of compensation presupposes that:

- the aggrieved party has a natural, moral, or legal right to a good, service, privilege, or condition for which compensation might be claimed;
- a loss has been incurred for which compensation is appropriate;
- the loss can be measured to determine equivalent value for compensation.

The principle of compensating trappers for loss of trapping opportunities is not accepted everywhere. Alaska recognizes no right of compensation for trappers when society chooses to

reallocate resources. The Alaska State Government rejects that trappers meet the first two premises of compensation, and it further considers that the third premise may be unmeasurable. On the other hand, as Hodgson cites in his paper, NWT, Alberta, Manitoba, and various Northern megaprojects have acknowleged that some form of compensation is appropriate for trappers.

Who should be reponsible for paying compensation is an open question. One might argue that society should pay since it is permitting the status quo to be disrupted. Conversely, perhaps society is simply a broker: the competing use which is profiting from the change in the status quo should bear the cost. The record in Canada has been to credit responsibility to the developer. Applying this principle in Yukon would mean that agricultural developers would have to pay the bill for compensating trappers. However, the prevailing assumption in Yukon so far appears to be that society should foot this bill. This may be challenged by taxpayers who oppose agriculture.

The arguments on either side of the compensation question will be reviewed below.

A. POLICY OPTION ONE: The Argument Against Compensation

Society made a temporary gift of a monopoly on fur harvest rights to the trapper. Society reserved the right to withdraw this privilege and it made no promises to the trapper that he or she would be able to retain these rights for anything over a five year period - although custom certainly would lead a

trapper to believe that automatic renewal is implied by the Wildlife Act.

Moreover, since the trapper never purchased this monopoly from society, no claim of "ownership" of these rights can be made. The closest analogy is that of a loan: society loaned the trapline to the trapper, and if it chooses to recall the loan and reallocate the land, it can do so freely. If the trapper feels that he or she has ownership rights, this is simply a misconception which has unfortunately been allowed to flourish. Cabins, trails, and other improvements built by the trapper are voluntary efforts done to increase profits gleaned from this social loan. Why should society have to pay to repossess a privilege that it loaned, but never gave away?

Practical considerations add to the argument against compensation. To some, compensation would just be another way of "shaking down the taxpayer". For example, not all trappers build facilities to the same standard. Trapper #1 might make do with crude shanties or even tent frames, while Trapper #2 might build relatively luxurious cabins. If both trappers claim compensation for loss of facilities, should Trapper #1 be financially rewarded for requiring greater comfort than Trapper #2? Should loss of income be part of a compensation calculation? If so, then if production from recent years is used as a guide, a trapper who conserved furbearer stocks would be compensated less than a trapper who overharvested. These kinds of conundrums lead some to conclude that compensation is too messy and is better left alone.

B. POLICY OPTION TWO: The Argument For Compensation

One need not maintain that trappers have a vested right to their trapline to justify the argument for compensation. One can conceed that society can freely bestow or remove trapping rights as it sees fit. However, society not only tolerates trapline improvements and investments, it has encouraged them. The unstated, but clearly implied premise is that the trapper would enjoy secure tenure in order to make these investments worthwhile. Clearly the trapper benefits from these investments, but society also gains, as trapping promotes rural employment and stability. From this perspective, the understood rules of the game are that a trapper can expect to renew his or her trapping license in perpetuity - provided he or she obeys the game laws, continues to trap on the line, and doesn't overharvest.

On this assumption, the trapper has made substantial investments in traps, trails, cabins, and equipment. This is not the end of the investment: the trapper has also incurred an opportunity cost. The time invested in trapping is time that might well have been devoted to nurturing another career or trade. This alternative might have been pursued if the trapper had been made to realize the insecurity of his or her tenure. When society deviates from this assumption by permitting uses which reduce or eliminate trapping values, compensation is warranted.

Advantages of a Compensation Policy

1. The Wildlife Act refers to compensation and encourages the expectation that it will be recognized.

2. If trapping rights must be extinguished, compensation provides all parties with the impression of parity and equity. Even though trappers might oppose a development, thier interests are not simply being confiscated for the benefit of others.

3. Compensation provides a clear-cut and final settlement, provided all affected parties agree to the package.

Disadvantages of a Compensation Policy

1. Not all people accept the fundamental premises of compensating trappers. Since the rights of trappers seem to be based more on unstated, uncodified assumptions, this may open the door for other resource users to claim compensation on similar grounds. For example, a wilderness adventure guiding company could construct a comparable claim for compensation if the river system or mountain range in which it operated were affected by hydro or mining projects. After all, they made investments and constructed a company reputation based on certain "fixed" natural resource assets.

2. The principles guiding how compensation is determined are unspecified and may be open to arbitrariness. The arguments establishing what compensation will be provided for (Fixed assets? Loss of income? Loss of lifestyle and opportunity costs?) are not solidly grounded in fact or in theory.

3. The principles guiding the amounts or forms of compensation are not clear. If compensation claims are guided by mushy criteria, three negative consequences might be forseen: awards may be extravagant; or they might be so conservative that they cause ongoing dissatisfaction; or worse, they might be capricious.

VI. ISSUE GROUP FOUR, FARM DEVELOPMENT AND MANAGEMENT: TRAPPING RIGHTS AND ACCESS

Once land has been dedicated to farming, specific issues surface concerning allocating and protecting trapping rights. These issues are closely related:

- Who, if anyone, should be allowed to trap on the various categories of farmland? This is an open question whether a registered trapline has been extinguished or not.
- How can the residual rights of the registered trapper be protected? Specifically:
  - if farm development blocks access to a registered trapline, how can access for the trapper be guaranteed?
  - if the registered trapper is to allowed trapping rights on farmland, how can access to these lands be guaranteed?

A. TRAPPING RIGHTS

This issue was alluded to in a general way in the section discussing trapline retirement. The options for distributing trapping rights on farmland are as follows:

1 (a). trapping rights are retained by registered trapper and may be exercised at will (registered trapline is not retired);

(b). trapping rights are retained by registered trapper, but may be exercised on farmland only with the permission of the farmer (farmer has no trapping or furbearing predator control rights);

2. trapping rights are retained by registered trapper, but trapper has the option of selling these rights to the farm operator;

3. trapping rights go to farm operator (registered trapping rights on farmland are extinquished);

4. trapping rights are distributed to any party willing to bid for them (after retiring a registered trapline);

5. no trapping is permitted by any party.

Option 5 might be rejected immediately on the basis of the stated economic development goals of renewable resource management: it is pointless to forego the harvest of furbearers on rural land, if it can coincide with other uses.

Option 4, as mentioned earlier, is nonsensical: if society is willing to permit someone other than the farmer to trap on farmland, then it might just as well be the registered trapper.

Options 1, 2, and 3 are each reasonable possibilities. Option 1 preserves the status quo most closely, and would eliminate the question of compensation. Its chances for success are dependent entirely on the attitudes of the trapper and of the farmer:

- Some trappers may reject that rights to trapping on agricultural land are a fair exchange for loss of undeveloped habitat. They may prefer to have the line retired with compensation.
- Some farmers may object strenuously to the requirement of permitting a trapper access to operate on their farmland (Option 1 (a)). This notion runs counter to some strongly-held beliefs in property rights. Through locked gates, sprung traps, and other behavior, a determined farmer could obstruct a registered trapper indefinitely. Option 1 (b) provides an incentive to the farmer to cooperate with the trapper, particularly if livestock needs protection.

We do not know how many trappers and farmers hold beliefs contrary to Option 1, nor do we know how strongly these are held. Vehement objections from farmers may cause more serious concerns to implementing this option than objections from trappers. If trappers don't accept this, they can apply political pressure. However, if farmers object strenuously - and act on their objections - they can cause persistent

problems with enforcement, in addition to applying political pressure.

Option 2 (permitting trappers to exchange trapping rights with farmers) is a subset of Option 1, and may provide an outlet for reducing conflict through willing seller/willing buyer exchange. This option would not involve the public, and would not require compensation. It, like Option 1, depends on its acceptability to the affected parties.

Option 3 (allocating farm trapping rights to the farmer) would be advisable if:

- registered trapping rights are extinquished in an agricultural district, or,
- registered trapping rights are not extinguished district-wide, but farmer/trapper conflicts are considered to be intractable on farm land.

If farm developers were held accountable for compensating trappers, they might be less inclined to prefer Option 3 to Options 1 or 2. This sort of caveat prevents an interest group from forcing a policy choice by simply witholding approval.

The policy selection between Options 1, 2, and 3 await input from the trapping and farming interests.

B. ACCESS ACROSS FARM LAND

In an unknown number of cases, the registered trapper will need guaranteed access across or through farm developments to reach his or her registered trapping area. There are only two major options to address this question:

1. Access will not be legally guaranteed...it may be negotiated with a cooperating landowner.
2. Access will be legally guaranteed.

If a landowner refuses to cooperate, Option 1 would either force upon the trapper the cost of devising some new, roundabout access; or at worst, it would put the trapper out of business altogether. The necessity of choosing this option is difficult to imagine.

Option 2 is fair and practical: the remaining question is how to achieve it. Many jurisdictions have recognized the need to accomodate existing pathways when distributing public lands into private hands. In Alaska, this occurs during the public regional planning process. As agricultural lands are designated, other interests identify traditional or existing access corridors. These "trails" are legally recognized, and no farm development may obstruct them or hinder transit over them.

In Alberta, access is not considered to be a problem, since topography and road grids provide many alternate routes. (Access in the form of illegally locked gates is a problem on some grazing leases in Alberta.)

Access may be recognized in the design of parcels by witholding title to a trail corridor. Alternatively, it may be included as a deed restriction on a fee simple title. Both tactics have legal validity, but a deed restriction is the weaker of the two: it is easier to overturn a restriction than it is to obtain title to a corridor.

Management of a corridor is important for subsequent enforcement. It is most administratively convenient to prohibit fences, gates, or buildings across or on a corridor. If the corridor is between parcels (the ideal situation), this has no problems, but it might create management difficulties if the corridor runs through a farm. The next alternative is to permit "texas gates" (rails or slats spanning a ditch across the corridor) which impede animals but not people. Thirdly, unlocked gates might be allowed. This is the easiest to abuse - it is relatively easy to throw a chain and padlock around a closing gate.

* The "texas gate" might be a hazard to moose. It also will not exclude predators.

In enforcement, the advantages of witholding title to a trail corridor are evident. If permitted gates are shown to be maliciously or consistently obstructive, they can be removed with little legal difficulty.

VII. CONCLUSION

This subsection of the Phase II report considered the following issues generated by considering trapping interests in agricultural development:

1. The allocation issue: is trapping actually a decision factor in allocating agricultural land?
2. The trapline retirement issue: should registered traplines be retired to facilitate agricultural development?
3. The compensation issue: should compensation be paid if registered traplines are retired, or if portions of them are "lost" to agricultural development?
4. The development and management issues: who should get trapping rights on farmlands; how can access across farmlands to registered traplines be protected?

Each of these major issues have several subsidiary issues. This report analyzed these and explored alternative policy options for meeting them. Few of the trapping-related questions are "closed problems" whose solutions are compelled by an analysis of objective facts. Most policy decisions will ultimately rest on value-choices: "right" and "wrong" options will be determined by several "soft" criteria.

Criteria for policy selections might be suggested:

- o contribution towards meeting major objective of developing agriculture and maintaining a healthy trapping economy (similar objectives for forestry and wildlife must also be factored simultaneously);
- o contribution towards meeting major sub-objective of reducing or minimizing conflicts between resource users;
- o public acceptability;
- o capability of being implemented;
- o minimize financial and administrative costs.

Each policy option discussed in this section might be individually reviewed in the light of these and other criteria. Alternatively, the policy analyst might construct any number of integrated scenarios. It is premature to recommend specific policy choices for each of these issues, but with these criteria in mind, we might construct an approach for tackling a trapping/agriculture conflict reduction policy.

The basic resource allocation question involves all of society to some extent. Forestry, wildlife, mining are among the other resource interests involved, but also involved are recreational values, community residential development interests, and scenic amenities, to name but a few. These interests cannot be sorted and balanced by administrative fiat - they are properly the focus of regional planning.

Within a planning context, the public has its opportunity to provide some direction on where and how resources and land use should be allocated. Considering the potential for conflict with other resource users (as discussed in Phase I), a sensible approach might be to create agricultural development districts. Within these districts, developing agriculture would be the priority - other interests would be secondary. Outside of these districts the reverse would be true. The location and boundaries of these districts would be determined by public planning. The process would be designed to accomodate social goals regarding all resource uses. Criteria for allocating resources in an integrated way will be more fully treated in

following sections of Phase II.

Within an agricultural district, the question of retiring a trapline awaits more specific information on several interrelated factors:

- the amount of the trapline likely to be allocated to farming - are there substantial land reserves to fall back on?
- the willingness of the trapper to function in an agricultural environment;
- the willingness of farming interests to cooperate with a trapper on farmland.

These questions are closely connected with the matters of compensation and trapping rights. It is conceivable that they could be bundled together interactively so that an "optimal" solution might be found for each instance. By way of illustration and discussion, one example might use the following scenario:

1. Compensation will be paid for traplines which are substantially absorbed by agricultural development, and on which either
   a) trapping revenues are likely to be significantly reduced because of habitat loss; or,
   b) the exercise of registered trapping rights are likely to cause intractable and persistent conflicts with the farmer.
2. The costs of compensation will be born directly by the developer(s) causing the displacement of the registered trapper. The amount of compensation will be determined by an independent review board.
3. Trapping rights to farmland may be sold or transfered from the registered trapper to the farmer through direct negotiation.
4. Access to traplines will be guaranteed by designing access corridors before farm development occurs.

5. Verification:

Traplines. All descriptions of trapline use and layout will be substantiated with a mapped "plan of operation". This will be sufficiently detailed to permit on-site inspection of trails and cabins should compensation be awarded.

Farm development. Farm development and subsequent title approval will be guided by a "farm conservation plan" submitted by the farm developer. This document will present clearing plans, roads, fences, windbreaks, and woodlots, and will be amended as changing plans or circumstances dictate. The purpose of the plan is to build into the design various public concerns regarding access, forests, wildlife, soil conservation, and water quality protection. (More on this in subsequent sections.)

As an interactive process for allocating resources and resolving conflicts, this scenario has some built-in flexibility. Compared with rigid development programs, the outcome in any case will depend more on the field conditions and on the values of the people involved. By assigning the costs of resource conflict to the participants, the public is spared the expense - and the controversy - of funding compensation. It is well to remember that not all taxpayers approve of compensation, and not all taxpayers approve of agriculture: some taxpayers may object strenuously to having to subsidize farm development by paying for compensation. Asking the developer to absorb the auxillary costs of development is a well-established principle.

From the farmers point of view, there are three options: he can avoid all costs by permitting the trapper to operate on his land; he can exclude the trapper by purchasing the trapping rights; or he can exclude the trapper by submitting the matter to a compensation board - and absorbing the costs of the award.

The farmer has every incentive to consider which alternative is in his best interest.

From the trapper's perspective, he can continue trapping in an agricultural environment; he can make the farmer an offer to sell his farm trapping rights; or (in event of conflict) he can submit to the compensation board - the award of which might not be as great as the returns from either of the other options. (Compensation might be cash, priority on obtaining a new line, or relocation assistance in opening unused portions of his current line.

Other policy choices could handle these issues differently: one very simple solution would have the line retired, the trapper compensated by the public, and the trapping rights given to the farmer. This would not be difficult to effect: if agriculture was clustered into development districts, there would only be some 10 or so traplines affected.

This section presented the major options for dealing with trapping conflicts as single questions. Any number of schemes for interactive, integrated scenarios might be devised. The chief limit to constructing these should be the requirement for simplicity and plausibility, in addition to the criteria listed above.

PHASE II: WILDLIFE SUBSECTION

I. INTRODUCTION

Concern for wildlife is prominent in land-use decision-making throughout the North. Few Yukoners are indifferent: animals are a subsistence resource for some, a source of sport or study for others, and are aesthetically appreciated by almost everyone.

Wildlife and agriculture interact in many ways: some conflicting, and some complementary. Not all of the conflicts are intractable, but neither can they be ignored or explained away if the public's stewardship of wildlife is to be taken seriously. In the Yukon, there is little doubt that some scale of agricultural development can coexist with wildlife management goals. However, within that statement is great latitude for cooperation - or confrontation - between the two resource sectors.

II. WILDLIFE AS A FACTOR IN ALLOCATING AGRICULTURAL LANDS

The wildlife/agricultural issues identified in the Terms of Reference and discussed in the Phase I Report may be broken into three major categories, listed in order of decreasing generality:

1. Allocation Question:

Should wildlife interests ever limit agricultural interests in selecting agricultural land disposals?

NO	YES
In no circumstance should wildlife interests limit a land disposition.	In some instances wildlife interests should limit agricultural land disposition.
- Reasons - implications - merits	- Reasons - Circumstances - implications & issues - merits

2. Resource Management Questions:

- impacts of agriculture on critical wildlife habitats
- impacts of fur farming and game ranching on natural populations
- controls on imported animals to control disease and speciation
- should game ranching and fur farming be evaluated as legitimate agricultural pursuits in land-use planning?

3. Farm management Questions:

- practices to minimize agriculture/wildlife conflicts
- problem wildlife
- fencing of livestock
- gargbage handling

As in the preceding section on Trapping, the purpose of this inquiry is not to solve the wildlife/agricultural issues, but to provide and explore the policy alternatives that each issue

raises. This project is one component of several simultaneous, complementary efforts in the agriculture/resource conflict field. Other projects have focused on specific topics such as carnivore problems, livestock control, and lands disposition.

A. The Allocation Question, Policy Option One:

In no circumstance should wildlife interests limit agricultural land disposition.

Accepting this option would acknowledge that on agriculturally suitable lands, agriculture has a higher value than wildlife. It would be difficult to quantify the economic or social values on which this choice might be made. Farm economics in Yukon are still speculation, and wildlife valuation techniques are still rudimentary. The social values behind either interest could be measured by polling, but this inquiry has never been done.

Perhaps the strongest argument for this option would be based on equity and pragmatics: that the supply of agriculturally suitable lands in Yukon is so small - especially relative to the amount of wildlife habitat - that it is unfair to limit farm development on these grounds. The argument would state further that it makes little sense to limit disposition, since the impact of farm development on the sheer numbers of wildlife in the Yukon is likely to be minimal.

The weakness of this option is that it ignores some important points:

- o Not all habitats are equal. The supply of high quality wildlife habitat in Yukon is a fraction of the total area of undeveloped land. Agricultural potential and important wildlife habitats can seriously conflict in a number of areas:

  - critical habitats, essential in some phase in the life of an individual or of a population (winter range, breeding or nesting grounds, seasonal feeding grounds).
  - migration corridors

- o Not all species are equally vulnerable. Species are valued for many traits, including beauty, utility, and relative abundance. The more rare or the more valuable a species is considered, the more serious is the loss of important or critical habitat: loss of red squirrel habitat is considered less serious than the loss of a peregrine falcon nest.

- o Society as a whole has a stake in the management of all wildlife. Rarely is the allocation of wildlife and agriculture resources a matter between the farmer-to-be and the government. The ability to see and enjoy wildlife nearby enhances the quality of life for many Yukoners. Some, such as subsistence hunters, trappers, and Yukon tourism businesses, depend upon relatively accessible wildlife for some portion of their livelihood.

Advantages of Option One:

- o This option imposes a simple and decisive decision rule for resolving allocation conflicts between these two resource sectors.

- o This option would be simple and inexpensive to implement and administrate: no biological or habitat surveys would be needed.

- o This option would be supported by some percentage of agricultural development interests.

- o Land disposition would be expedited.

Disadvantages of Option One:

- This severely limits policy and management options towards a complex set of situations.
- This option would have little sensitivity to protecting critical habitats, staging or nesting grounds, or migration routes.
- This option would expropriate from society as a whole its voice in wildlife management/agriculture allocation tradeoffs.
- This option would be strongly opposed by a large sector of public opinion. (No specific studies for Yukon have been done, but surveys by the U.S. Fish and Wildlife Service [1982] indicate that well over half of the population enjoy some wildlife-based activity. Percentages in this survey increased dramatically in Alaska. A similar study in Canada by C.W.S and the provinces showed Canadians have a comparable interest in wildlife.)
- This option can be presumed to be opposed by organized interest groups such as game associations, conservation associations, and tourism operators which value wildlife viewing opportunities along road systems.

B. The Allocation Question, Policy Option Two:

In some circumstances, wildlife interests should limit disposition of agriculturally suitable lands.

Wildlife/agriculture issues have suffered when extreme positions have been imputed to the opposite sides. Few would advocate Policy Option One and few would advocate its converse: that in all circumstances wildlife interests should take precedence over agricultural interests. Clearly, this position could block agriculture in almost any situation. Thus, Policy Option Two is qualified by the term "in some circumstances."

Since almost all undeveloped land in the Yukon is wildlife habitat of some description, wildlife interests must specify the situations which justify limiting land disposition. If these are not made clear, then agricultural developers can indeed suspect that wildlife concerns are applied wholesale to impede development.

No sole spokesperson for wildlife concerns is recognized in Yukon - which is expected, given the broad range of public values in wildlife. A composite of the most significant reasons for limiting a land disposition can be constructed from various sources:

a. Critical habitat for important populations of wildlife (not crisply defined, but this may be understood to include recognizable concentrations of game species, important carnivores and furbearers, waterfowl, raptors).
   - winter range
   - breeding grounds/nesting grounds
   - important (not replaceable) seasonal feeding grounds
   - migration corridors/staging areas

b. Critical habitat - perhaps any occupied habitat - for rare or endangered species.

c. Recognized hunting or viewing grounds.

d. Situations which would create a high likelihood of conflict with wildlife. (For example, a swine operation in an area of known grizzly concentration.)

In some societies - or in other eras - none of these situations would pose conflict: agriculture would simply be given precedence. Biological needs of species define the first two cases, while society's tolerance level for conflict define the third and fourth. None of these cases are automatically defined by objective facts: **The significance of imputed conflicts is**

open to debate. It is important that wildlife managers, land managers and the public agree on criteria which define wildlife concerns vis-a-vis agriculture - and a methodology for assessing them.

With such an understanding, wildlife concerns can be given a credible, consistent voice. Methodologies exist which might be modified to suit Yukon conditions. Renewable Resource Wildlife personnel attended a workshop in Anchorage which presented one such process: the U.S. Fish and Wildlife Service "Habitat Evaluation Procedures" and the "Human Use and Economic Evaluator" integrate biological and human information for land-use decisions.

Wildlife concerns can be incorporated into land allocation in a number of ways. Whether resource preferences are indicated by public planning, or by administrators, wildlife and agricultural allocation conflicts can be separated by broad-scale zoning, or decided case-by-case. The record elsewhere seems to indicate that zoning may provide better protection for wildlife. Incremental, cumulative impacts are difficult to assess in case-by-case disposition.

Advantages of Option Two:

- If realistically applied, this option can better balance competing social interests in wildlife and agriculture - and thereby reduce resource conflicts.
- This option better meets the mandates of the Department of Renewable Resources, particularly in regard to protecting habitats of migratory waterfowl and endangered species.

- This option would be likely to enjoy support of a broad cross-section of society.

Disadvantages of Option Two:

- If inconsistently or capriciously applied, this option could aggravate resource conflicts by obstructing agricultural development proposals at every turn.
- This option requires considerable policy negotiation to define criteria, and solid field assessment and data interpretation to apply them to land disposition. This is might be costly and complicated.
- This option might be opposed by agricultural interests, especially if it were seen as slowing or severely restricting land dispostion.

C. Other Jurisdictions.

Each of the western jurisdictions in which new agricultural lands are being disposed have adopted some version of Option Two. Wildlife is considered as a decision-factor in land disposals.

Alaska has a land-planning system which plans resource priorities on three levels: statewide, regional, and local. All land-uses and dispositions on state land are by law subject to the planning process. Each major land or resource interest, such as forestry, agriculture, fish and wildlife, recreation, transportation, identifies its priorities within each planning unit. These priorities are compared in a planning forum with departmental mandates, political agendas, and public opinion to arrive at some balanced or "optimum" mix of resource uses. The

plan must receive public approval, and its land-use map has the force of law. Each resource has an equal platform on which to promote its priorities, and all participants must ultimately buy into the planning process before a final document can be drawn. The net effect of this process is to zone agricultural districts, while other resources elsewhere are managed under varying degrees of multiple-use.

Federal lands in Alaska have not been subject to agricultural disposition to any extent since the Homestead program was suspended over a decade ago. Were lands to be disposed, however, the process would be subject by law to the provisions of the National Environmental Policy Act (NEPA) which would require environmental assesment and impact statements. Wildlife concerns would find opportunity to be voiced in these stages.

Alberta and British Columbia have approaches comparable in philosophy to Alaska's, under the general rubric of "Integrated Resource Management". No resource has a priori precedence over another: allocation decisions are in theory made by considering a broad range of factors, including resource capabilities, demands on the resources, conflicts, political and public opinion, and so forth. The resulting maps are essentially zoning guides identifying prime resource uses. The chief difference in effect with the Alaskan model is that plans are approved by cabinet - not the public, and the plans are guiding statements for public policies, and do not have the force of law. It is presumably easier to amend or circumvent the intent of these plans.

III. RESOURCE MANAGEMENT ISSUES

Following the fundamental issue of allocating wildlife habitat to agriculture are subsidiary issues dealing with impacts and policy jurisdictions:

a. Impacts of agriculture in areas identified as critical wildlife habitat;

b. Impact of fur farming and game ranching on natural populations;

c. From a land-use planning perspective, the consequences of evaluating fur farming and game ranching as a legitimate agricultural pursuit under the agricultural land disposition policy.

Pursued in depth, each one of these topics is a research project in itself. The purpose of this section is not to identify and document the instances and forms of these issues, but to examine alternative stances the Government of Yukon might take on them.

A. IMPACTS ON CRITICAL WILDLIFE HABITAT.

The list of possible impacts of agriculture on wildlife habitats is long - and depends on many variables, including the species and habitats in question, the kind of farm in question and the management practices employed on it. (See Phase I Report.) The potential for conflict is by definition greater in areas of "critical" wildlife habitat, and it is clearly greater

the larger the development is in proportion to the affected habitat. The combinations of these variables is large, so we will keep to general principles.

For this issue, we might group agricultural impacts in three categories:

a. extensive, great habitat modification (landclearing for crops);

b. extensive, no landclearing, habitat modification dependent upon grazing pressure;

c. intensive, little habitat modification (eg. greenhousing).

These are listed in decreasing order of impact on critical wildlife habitat. Landclearing destroys critical habitat by altering its ecological conditions. The impact of open range grazing is likely to be directly proportional to its intensity. Fenced grazing, so far as moose and caribou are concerned, preempts habitat as much as landclearing. Grazing and carnivore habitats end up being mutually exclusive. Activities such as greenhousing would offer the least amount of impacts - unless the cumulative effects of several operations were significant.

Options:

1. Ignore critical habitat concerns when disposing agricultural land. This was examined above as Option One of the allocation question, and suffers from serious concerns.

2. Prohibit agriculture altogether from Critical Habitats. It is not known clearly how seriously this would inhibit agricultural development, since the overlap of critical habitats with agroclimatically suitable lands has not been sytematically mapped. Except for areas already impacted by human uses near the communities, it is generally considered that good agricultural land is also good wildlife habitat - for identical ecological reasons. However, the demand for agricultural land does not depend solely on biological

productivity: thus land applications do not always focus on valuable wildlife habitat. If the extent of overlap was not great, this would be a sound strategy, since it would maintain wildlife interests at little cost to agriculture. (Note: the lack of data on a variety of subjects - and their critical importance in decision-making cannot be overstressed for these issues.)

3. Judge each overlap on a case-by-case basis. This would provide more flexibility than the first two alternatives, and it would minimize the possibility of obtaining absurd results which can occur when blanket rules are applied. Considering the range of variables noted above, it is quite possible that some kinds of agricultural developments in or adjacent to critical habitats might be harmless....while others could be devastating. Methodologies for assessing this would have to be developed.

B. IMPACTS OF FUR FARMING AND GAME RANCHING ON NATURAL POPULATIONS.

The potential impacts of these activities on natural populations may be summarized in categories:

1. Habitat disruption.

   This differs little from the impacts caused by other kinds of agriculture. For most kinds of game ranching, extensive fencing will be required. Observations from the Yukon Game Farm indicate that large cleared paddocks will be important to successful Elk operations. Fur farming should require substantially less land for the cages and pens.

2. Disease transmission.

   Most kinds of game or fur which might be raised will be identical to wild specimens in their ability to harbor diseases. Disease might be brought in via imported animals (including domestic), or it may be able to break out indigenously through congested confinement, or unsanitary conditions. The list of shared susceptibility is quite long.

3. Speciation.

   This is a potential problem with almost any species which has a wild counterpart in Yukon. Reindeer and caribou are obvious concerns, so too are various Dall, Stone, or Fannin Sheep varieties if adjacent local populations differ. The potential problem can exist with elk and bison if imported varieties differ from the strains established in the

Aishihik - Nisling country. Furbearers of non-Yukon origin pose an identical problem. This concern could be extended to furfarms which raise Yukon furbearers genetically different from the adjacent local populations. (The seriousness of this concern cannot be established at this time.)

4. Exotic escapes.

Not all game or furbearers which might be commercially raised have Yukon counterparts. Musk oxen, prairie bison, yaks, llamas, chinchillas, ibex, are just some of the species which have been contemplated over the years. Some, like the prairie bison or reindeer are technically exotics but pose a speciation threat as well. Others, like Musk oxen or Arctic fox are for all practical purposes exotic outside of the Arctic Coast. The history of exotic escapes and transplants throughout the world illustrate that it can have unforseen and even catastrophic effects on an ecosystem.

5. Predator attraction.

Game ranching and fur farming are like any livestock operation in their ability to create problem predators. Some, like elk and musk oxen, might be quite able to handle a predator - in marked constrast to domestic cattle or sheep. Newborns and calves are vulnerable in any event. Predators might be attracted to captive furbearers - or perhaps more likely - to their food rations.

Given proper investment in game fencing and handling facilities, predators need not be an unsolvable problem - however, inadequate operations can cause a serious predator conflict. (By way of example, a swine operation on the Carcross Road accounted for 38 black and grizzly bears between 1950 - 1962, while the Pelly Farm destroyed 32 bears of both species in 1952 alone. [Grant Lortie, 1982])

Alternatives to Meeting Impacts

1. Do nothing.

The history of wildlife management demonstrates clearly that to take no policy stance on any of these issues is to accept a deterioration of wildlife values. Each of the impacts cited above can be mitigated or prevented altogether. There is nothing to be said for taking no policy.

2. **Mitigation and preventitive measures.**

Estimating the costs of implementing these measures is beyond the scope of this study. Each measure (other than ones addressing wildlife habitat loss) conveys a direct economic benefit to the operator in addition to protecting wildlife resources. It is well to consider that these efforts are intended to prevent **real, predictable problems** which have occured elsewhere. We can comment on the costs of <u>not</u> implementing them: the value of the wildlife they are protecting is incalculable.

a. Habitat disruption.

Minimizing this impact has been covered in a general sense under the resource allocation dicussion. A variety of planning and assessment approaches can be employed if the strategic decision is made that some habitats deserve protection.

b. Disease transmission.

Imported diseases can be screened through a well-designed and enforced import permit, quarantine, and inspection process. Similarly, domestically generated diseases can be minimized through proper handling, cleanliness, veterinary care, inspection...and of course, good fencing. Society must insist on the right to destroy infectious animals. These measures cost money to enforce and administrate, but their effectiveness and importance is evident.

c. Speciation, Exotic Escapes, Predator attractions.

Prevention can be summed up in three words - fences, cleanliness, and facilities. Well-hung commercial game fencing can keep stock in - and predators out. So can well constructed fur pens and food facilities. Nine-foot high wire mesh set into the ground is effective against wolves and all but the most determined bear - these too can be discouraged by augmenting a game fence with electric wire. These are costly investments, but they are demonstrably cost-effective when balanced against losses of stock, management time, losses of public wildlife in the case of destroyed predators, and expenses to the public treasury from Renewable Resource administration and extension personnel. These fences are especially worthwhile compared with the costs of speciation

(more descriptively, "genetic contamination"). These costs are literally limitless. Genetic contamination is a form of extinction: we lose a genetic combination which took all of evolution's time to create. Fencing standards and inspection are the key to minimizing these problems. (It may be possible to reduce fencing costs if agricultural parcels were grouped. The feasibility of realizing savings would depend on the topography, need for access corridors, and the compatibility of adjacent operations.)

C. FUR FARMING AND GAME RANCHING AS AGRICULTURAL PURSUITS

From the perspective of land-use planning, should fur farming and game ranching be evaluated (and possibly administered) as legitimate agricultural pursuits - or as some form of wildlife activity? It is evident that the impacts of these activities on land and on other resources are almost identical to those expected from conventional livestock raising. Since the sum of possible effects is virtually the same, there is no reason from a planning perspective not to consider game ranching and fur farming as agricultural pursuits.

IV. FARM MANAGEMENT ISSUES

A. BASIC ISSUES

Once alotted to agriculture, farms need not cause incessant problems with wildlife. Garbage disposal, livestock handling, fencing and facilities can be managed in ways that can provoke wildlife conflicts - or minimize them. Some very effective practices are quite simple and inexpensive relative to the costs of lost stock ....completely disposing or incinerating

garbage and offal to eliminate attractive odors, is one example.

Farms can even be designed with some kinds of wildlife in mind: shelterbelts and leave strips can provide edge cover, while potholes and marshes can be left unfilled and unmowed. In fact, a variety of song birds, small mammals, mule deer, foxes, hares, sharp-tailed grouse, and lynx will be more abundant in the mosaic of habitat types created by farms than in monotonous coniferous forests. Proper regulations and land-owner cooperation is needed to realize these benefits: dogs cannnot run at large, hunting must be managed, access to habitats must be allowed for wildlife, chemicals must be carefully regulated.

In some instances, farmers can join in partnership with wildlife: raptors, foxes, and weasles can keep rodent populations down in grain fields - but the cost of their help is predator-proofing the chicken pen.

Other practices are very effective - but are relatively expensive. Anti-predator fencing is clearly the most effective way to minimize livestock conflicts with carnivores (and traffic), but the price is high. Specific "recommended management practices" for minimizing conflicts and for promoting wildlife/farm compatibilities are well documented. Both in Canada and the U.S., federal, provincial, and state agencies have publications on this topic. (See Appendix for some of these.) Private organizations such as Ducks Unlimited and the Audubon Society have done useful work with waterfowl and other birds. In Yukon, the

Fish and Wildlife Branch have written a paper on "Managing Livestock Operations To Avoid Carnivore Problems."

We know pretty well what to do, and also how to do it for minimizing wildlife/agriculture conflicts. We face instead a policy question of responsibility: should it be done, and if so, by whom? The specific actions and their implementation follow in a straight-forward way from the answers to the policy questions.

These policy questions may be generalized as:

- Should farms be obliged to employ techniques to minimize wildlife conflicts? To what extent? Who should bear the cost?
- Should predators be controlled - or should farmers take their own risks? Should the public absorb the costs of predator/ livestock conflicts? Whose fault is the creation of a "problem predator"? Who should absorb these costs?
- Should limits exist on open range? Who should bear the costs of property damage and public safety?

These problems are interconnected and revolve around competing views of private property rights and of the public's common property interests in wildlife and safety. Where one stands on these issues stems from which value base one has adopted: a "free market" individualist will arrive at different conclusions than will a "public interest" sort. (Section 1, Phase I.) Where values are in conflict, consensus may not be possible - settlements might never be reached, or they may have to be imposed by superior numbers or superior authority.

Two basic viewpoints on private versus public responsiblity are presented. Each gives rise to competing positions on management issues:

The Private Property Position

One basic position holds that once a farm has been allocated to private hands, society has sanctioned it as both private and agricultural. The farmer has no particular obligation to modify his farm management because of wildlife....wildlife is the public's problem and the public's management responsiblity. Problem wildlife are essentially trespassers which the farmer is entitled to destroy at will. Some would assert that compensation should be paid for stock losses - after all, the damage was done by public wildlife on private property. Demands for predator control flow directly from this reasoning.

The Common Property Position

This position reverses the onus. Wildlife, as common-property resources, are enjoyed by all. They also are the responsibility of all: collectively as government, and individually as citizens. Wildlife have never been restricted to public land - if they are not welcome on private land, it is the landowner's responsibility to exclude them. Why should the public incur losses to their wildlife or losses to their treasury because some individual declines to protect his livestock? (Lortie in 1982 estimated that the Wildlife Branch averaged $215 per response to bear complaints, and that one wolf-killed horse in Watson Lake cost the taxpayers $2500 in CO time and helicopter fees.) Some would continue this argument to the open-range issue: since the benefits of livestock raising accrue to the owner, so too should all of the costs. Neighbors should not have to absorb property damage from someone else's livestock (or the costs of protecting from it), nor should they risk highway accidents.

Variations and combinations exist on these positions, but they illustrate the fundamental gulf which separates their polarized forms. Yukon need not accept either of these polarities. It can define what people might expect on agricultural parcels.

Some alternatives:

1. Farmer assumes no responsibility for reducing wildlife conflicts. Fencing, garbage handling, operations are discretionary. This has two suboptions: that society assumes responsiblity for reducing wildlife/agriculture conflicts; or that no one does. It is assumed that farmers are entitled to destroy problem wildlife in defense of property.

Advantages:

- Minimal amount of obligated expense to the farmer. Farmer can choose the amount of protective measures to be taken.
- Minimal administrative expenses to society - if there is no predator control and no compensation

Disadvantages:

- Public absorbs wildlife losses, especially predators. No incentive exists to accommodate other wildlife in farm management.
- Public absorbs large expenses, if predator control is assumed.
- Strong opposition will be felt from sectors of public which support wildlife.

2. Farmer is obligated to reduce wildlife conflicts. Farmer must incorporate farm management practices which minimize unnecessary wildlife habitat losses and take mandatory, effective measures to protect livestock against predators.

Advantages:

- Wildlife interests will be given maximum protection in an agricultural environment.
- Public expenses will be minimized
- reduced livestock losses to farmer
- minimum number of chronically "problem" predators created

Disadvantages:

- larger investment costs for farmers: possible disincentive to invest in agriculture
- possibly higher operating costs
- possibly lower farm yields
- these points all decrease the potential profitability of an operation - and therefore its attractiveness.

* Note to alternative 2:

a. Cost sharing, grants, low interest loans, tax breaks are all public strategies which might reduce or share the financial burdens of higher farm investment costs.

b. This option describes quite closely the steps that a game rancher would automatically be obliged to follow if game ranching concerns were to be adequately met.

3. Farmer and society share responsibility for reducing wildlife conflicts. Wildlife management and conflict reduction techniques are devised and applied according to the merits of the situation - no blanket regulations are applied to agriculture in general. In this partnership between society and the farmer, wildlife conservation measures are designed directly into the farm parcel, and "best management techniques" are made a condition of the sale agreement. If little conflict is forseen, little is required. If great predator problems are anticipated, the farmer might choose between absorbing the risks utterly, foregoing livestock production, or participating in some form of assistance (per Note, above) to fence his livestock. Government extension agents and publications would be oriented towards ways of reducing wildlife problems. Only truly rogue predators would be destroyed.

* Note to alternative 3:

This option would also contain a spectrum of responses to open-range grazing conflicts, which could be permitted conditionally. If conflicts with wildlife or with the public emerged, the privilege could be revoked. As a graduated response, this would not force fencing on a livestock owner who endangers no one and has minimal predator conflicts.

Advantages:

- Wildlife interests are given high protection in an agricultural environment
- Wildlife/agricultural conflicts are reduced
- Costs to agriculture are directly proportional to the problems at hand.
- Society absorbs no "hidden costs" in wildlife mangement.
- Ground-rules for reducing conflicts are laid out in the conditions of accepting a development option on a parcel. Conditions which in the future might prompt additional measures are specified.
- Public costs of predator control reduced.
- Public support?

Disadvantages:

- Greater farm development costs
- Greater administrative costs in parcel design and compliance enforcement.
- Greater public financial costs if development assistance is given
- Some reduction in farm productivity?
- Opposition by some farm developers.

No one knows how extensive agriculture might become in the Yukon. For the moment, we can set aside the question of habitat destruction as one to address in a planning allocation forum. On designated farmland, the experience elsewhere shows that without specific regulatory measures, agriculture has been hard on large predators, raptors, and in many instances, various bird life.

The record also shows that effective cooperation between farmers and wildlife managers can have spectacular results: ungulates in particular can thrive on and near farmland, and so too can waterfowl, various game birds, and raptors. Ducks Unlimited has many good case histories of cooperation. Unfortunately, recent literature suggests that these measures can not be relied on as permanent. In many agricultural regions wildlife managers are discovering that wildlife populations are declining as voluntary farm practices which once promoted wildlife are being abandoned.

Volunteerism may be a frail reed in protecting wildlife interests: Yukon should consider some regulatory means of ensuring that compatible wildlife has a place on Yukon farmlands. These will be discussed in the final section of this report.

PHASE II. FORESTRY SUBSECTION

I. INTRODUCTION

What resource in Yukon can be harvested, reproduces naturally and grows under the climatic and fertility regimes of the subarctic? What resource has a gene pool which has become adapted to the subarctic environment through thousands of years of evolution? What resource is producing construction material, meat, vitamins, fuel for heating, syrup and other materials for human use, recreation, scenic vistas, and spiritual solace in an unmanaged or, in some cases, mismanaged condition? What resource will be stripped from the earth and burned in order to create a grain or hay-based agriculture? The one resource in Yukon which answers all of these questions is the forest resource. (Paraphrased from J. Zasada, USDA Forest Service, Alaska, 1977)

Even though some of these questions might be overstated, they are all valid. Unlike the situation between agriculture and wildlife or trapping, the tradeoff between forest resources and agriculture is absolute on most farm parcels. The questions were posed in this stark form to illustrate how many who recognize the value of the forest view agricultural land disposition to date. Forest managers, forest industry people, and forest recreationists of many descriptions have felt that the forest resource has been discounted in the allocation of farm land.

Even the conflict questions raised in the Terms of Reference view the forest resource simply in terms of timber and fuelwood, and not as the rich, integrated ecological unit it really is. This is significant when allocating land, for the estimated value of a stand of timber is by no means equal to the values represented by a forest stand - especially a managed stand.

Forestry/agricultural conflicts may be grouped as follows:

1. The Allocation Question:

   Should forest resource interests ever limit agricultural interests when selecting agricultural lands?

Option one: NO

- reasons,
- implications

Option Two:
In some circumstances.
Discussion: How shall the forest resource be evaluated to determine its value relative to agriculture?

2. Who should own timber and fuelwood rights on land allocated to agriculture? Who should have access to these resources?

3. Land clearing: should usable resources be recovered? Should clearing plans be approved?

II. FORESTS AS A FACTOR IN ALLOCATING AGRICULTURAL LANDS

Forest interests have not been seriously considered in agricultural land disposals to date. Not only has little or no attempt been made to estimate the value of the standing timber and fuelwood, these resources have often been haphazardly squandered.

The fuller values of a forest, which include wildlife habitat, recreational grounds, watershed protection, and viewscapes,

have never been given an integrated evaluation in land disposals. The first question is whether this de facto policy should continue: **"Should forest interests ever limit agricultural interests when allocating agricultural lands?"**

A. Policy Option One:

> **In no circumstances should forestry interests limit agricultural interests on agroclimatically suitable land.**

This option assumes that on every parcel of agroclimatically suitable land, forests have a lesser value to society than agriculture. As with the similar argument about wildlife habitat, this assertion cannot be tested with the methods now employed. We cannot accurately estimate farm values, nor have we attempted to estimate the sum total of forest values. As it stands, the documented values of the timber and fuelwood component of forest values its peak year of 1980 was about four times greater than the highest value for agriculture...both are fledgling industries. The point is that we employ no method of estimating the relative values of forestry and agriculture. Land might indeed have more potential value as a farm than as a forest - but that statement could be wildly false, and we would have no way of knowing it, with the way we presently proceed.

The strongest argument in favor of this option is again the equity question: since the supply of potential farmlands is limited relative to the supply of forest lands, agriculture should be given precedence on suitable lands. A further argu-

ment could be that if our means of comparative evaluation is primitive, agricultural land disposition could be brought to a standstill if it was attempted to value the competing resources. A decision rule that selects in favor of agriculture is simple, clean, and easy to administrate compared with the alternative of weighing other resource values.

The arguments supporting this option overlook that Yukon has very few high quality forest stands (as measured by timber potential). In fact, the environmental conditions which define suitable farmland closely describe sites capable of producing commercial volumes of timber. The overlap is remarkably high, when one compares agroclimatic capability maps with the reconnaissance timber inventories recently completed. This option also ignores that the sum values of forests are greater than the value of the standing and downed trees upon it.

Advantages of Policy Option One:

- o decisive rule, easy and inexpensive to administrate
- o expedites land disposition
- o likely to be supported by many land applicants

Disadvantages of Policy Option One:

- o makes an unexamined assumption on the relative economic and social values of competing resources
- o discounts the integrated values of forests, wildlife habitat, recreation lands, and open space
- o inflexible rule, and it expropriates from other affected parties their voice in allocation choices
- o likely to be opposed by some in forest industry and by other users of forest lands

B. Policy Option Two:

In some circumstances, forest interests should limit agricultural interests when selecting agricultural lands.

The argument for this option has already been stated in the preceding discussion: that forest resources are sufficiently valuable that they should not be automatically discounted when selecting farm lands. Further, the people actually affected by converting forests are so numerous that it is unfair to deprive them of a voice in this matter.

But how should forests be evaluated? If timber and fuelwood alone are the yardstick, should it be by estimating existing volumes at current market values? If the stand is immature, should the value of the future crop be discounted backward to present values? Should site capability be factored?

A strong argument can be made to consider all of the benefits of the forest. But how can watershed protection be valued? Or recreational lands? Scenic qualities? It is clear that not all of these are subject to straight economic valuations. Methodologies exist for measuring some of these qualities, but not all. The sum total of forest values may be best measured by a blend of nominal, ordinal, and comparative valuations which is properly the focus of public, integrated planning. As with the wildlife interests, forest evaluation could be used to impede or stop agriculture altogether if the process were mischievously applied: all affected parties must be allowed to participate to guard against this.

Advantages of Policy Option Two

- o provides more flexibility in allocation decisions
- o provides opportunity to consider the public good more broadly
- o provides opportunity to estimate integrated resource values
- o may be supported by a broad cross-section of the public

Disadvantages of Policy Option Two

- o more complex and administratively expensive than Option One
- o can yield poor or absurd results if not done well
- o more research needed on identifying reliable valuation methodologies
- o can slow or limit agricultural land disposition
- o might be opposed by agricultural interests

III. TIMBER AND FUELWOOD RIGHTS

A. FEE SIMPLE AND AGREEMENT FOR SALE LANDS

The questions of timber and fuelwood rights on fee simple and agreement for sale lands are logically distinct from those questions on option lands and leased lands. The farmer or rancher has greater vested interests in fee simple and agreement for sale lands, while the public retains more vested interests in option and leased lands.

The vast weight of tradition and practice in North America is to recognize exclusive ownership of timber and fuelwood on fee simple lands. In Yukon this might even be vital to the economic success of developing farms: fuelwood and building materials are important assets. There are no strong arguments against giving the farmer timber rights on fee simple lands.

Agreement for sale lands are not yet privately owned, but the public has every intention of transferring title if conditions are met. Ownership of timber and fuelwood rights naturally remain with the public until the title changes hands. However, if timber and fuelwood is important to farm development, then it follows that this asset should be transfered intact to the owner-to-be.

The only reason an outside party might be allowed to harvest the wood on agreement for sale lands is if the prospective owner intends to waste the resource. The chief way this would happen is through landclearing without salvage. If the public

is concerned about this possibility, it could authorize land-clearing only by permit, and issue permits only upon approval of the salvage provisions built into a landclearing plan. This would require field inspections and the provision of non-compliance penalties. However, if the public is not concerned about timber being wasted, then it is sensible to leave the timber rights on agreement for sale lands entirely in the hands of the prospective owner.

B. OPTION LANDS

Timber and fuelwood rights on option lands are more debatable. The terms of the first agreement for sale must be successfully met before option lands can be developed. Five years can elapse before the first agreement is settled, and if an agreement is entered for the option land, another five years might elapse before its ownership is confirmed. If timber rights were reserved for the option-holder, the public would be denied access to timber on these lands for up to ten years - with no advance guarantees that the lands would be successfully developed. If economically accessible timber or fuelwood is limited in a given region, the public is absorbing large opportunity costs in bypassing these lands.

The main argument in favor of holding the timber on option lands for the possible future owner is that this resource may be an important development asset. However, a logical corollary to this concern is that the timber should not be used by the

developer until the first agreement for sale is concluded; and, that the timber is not allowed to be subsequently squandered.

The case against reserving timber and fuelwood rights on option land is that the public essentially gambles opportunity costs for ten or more years. If accessible wood is a limited resource within the economical transport radius of a community, this cost can be serious. Some might argue further that the public offers the farmer a generous deal on the first agreement for sale - for the public to abstain from the timber on the option land is too generous.

C. LEASED LANDS

On grazing and similar leases, the public does not intend to transfer title. While sanctioning specific uses, it retains the right to allocate other compatible activities. These are intended to be managed by multiple-use principles. No party is given right to exclude others from these lands - exclusive rights are given only for certain activities.

"Compatibility" is the crucial term in multiple-use: the key question is whether timber or fuelwood harvesting is incompatible with grazing. This in turn has three sub-questions:

1. Do timber and fuelwood harvest actually harm grazing productivity?
2. Does the activity of timbering unduly disturb or disrupt grazing animals?
3. Do timber or fuelwood harvesters cause negligent or malicious damage to grazing lease holders?

Let us consider each question in turn.

1. Timbering or fuelwood gathering can diminish grazing productivity chiefly if large areas are covered with slash or if the ground-cover has been extensively disturbed. Extensive mats of slash and debris can cause the most long-lasting harm, since these can obstruct forage growth and they decay very slowly. On the other hand, this is not an unavoidable problem: slash can be disposed or where appropriate, thinly scattered. Disturbing the ground-cover causes a short-term loss, but a long-term gain in productivity. In most forest stands, disturbing the duff layer promotes growth by exposing mineral soil. This, in combination with opening or thinning a forest stand, increases the growth of forage and thereby increases grazing values.

This aspect of wood harvest, if properly done, will usually increase grazing values.

2. Grazing animals have variable reactions to the activity of wood-harvesting. Some animals are unconcerned, while others move away. Provided the lease in question is large enough that livestock do not feel cornered or trapped by woodcutting and hauling, problems elsewhere have been uncommon.

3. The chief harm of wood-harvesting on grazing leases has been damage to fences or gates, or gates left open. When it occurs, this is indeed a problem - scattered livestock are not easy to regroup. If done negligently, it is inexcusable. If done purposely, it is criminal. In either event, it is not inevitable that this must occur. Modifying human behavior is a complex task, but the experience of multiple-use managers indicates that cooperation can result from incentives, perceived responsibility (education), backed up by penalties.

Multiple-use frameworks cannot exist on unmanaged land. They require several conditions:

- Any commercial and consumptive uses must have permits. In some cases, recreational uses must have permits. These are public lands, and permits should be granted by public agencies - not by user-organizations.

- Enforcement and inspection officers must exist and be capable of enforcing permit stipulations.

- No permitted user can be allowed to assert exclusionary or higher rights over other permitted users. A locked gate invites breaking if other permitted users have no key.

- Penalties must exist and be applied to people who violate the rights of other allowed users. This includes unauthorized woodcutting. It also includes the negligent actions of legitimate users: damage to fences, gates left open.

This kind of management framework costs money: staff and administration are needed. It will also not guarantee perfect results: gates seem to be a perennial problem in some districts. In many of these areas, self-closing gates or the slatted "Texas gate" have been successfully used.

The alternatives to a managed, multiple-use framework are:

- **The Status Quo.** Essentially multiple-use with minimal enforcement and minimal administration. The effect on the ground is increasingly divisive: some lease-holders exceed their authority by locking gates and posting against trespass. In some cases both permitted and unpermitted wood-cutters have gained or forced entry. Fence and gate abuse have occurred. No clear effort has been made to establish limits of legitimate activities.

- **Give Lease holders the right to exclude woodcutting.** Wood rights could be given to the grazing lease holder - or simply kept in reserve by the public. Forestry officials have expressed concern about giving wood rights to the lease holder: this could encourage fraudulent lease applications done for the purpose of getting cutting rights which would not otherwise be given. Moreover, it would concentrate large tracts of forestlands into comparatively few hands - and reinforce the impression that these lands were somehow private. If the public retains wood rights, the forest productivity of these lands are simply frozen.

IV. LANDCLEARING

Landclearing, as it is conventionally done, wastes both the merchantable timber and the usable fuelwood. The forest is customarily knocked over with a bulldozer in one pass, and then pushed into undifferentiated piles or berms. In the process, much of the timber is shattered or split, and the potential to salvage firewood from the remainder is discouraged by the

jackstraw pile of branches, stems, stumps, and roots, all liberally admixed with dirt and gravel. These piles can be so packed with dirt that they can resist efforts to burn them even after the lapse of years.

There are two virtues to this form of landclearing: it is fast and it is effective. However, on an average forest site, it can waste up to $640/acre of fuelwood (approx. 8 cords/acre @ $80/cord). Even greater values can be lost if quantities of merchantable timber exist.

Society must determine if it is concerned by this waste. If it isn't, then there is no reason to change present practices. But there are reasons why society might be concerned: accessible fuelwood and accessible timber is not unlimited in Yukon. Why should forestry officials have to create access to fuelwood stands, and permit logging of untouched forests while forest resources are knocked down by landclearing close by?

One point should be emphasized: there is little economic sense in compelling the salvage of wood. If it loses money, it will be resisted. There are two realistic alternatives to reducing the waste of landclearing:

1. Demonstrate or otherwise convince the farmer that there are economic advantages - and techniques for achieving them - to salvaging wood.
2. If the farmer declines to employ salvage methods, then permit one or more outside parties to salvage the wood.

If it cannot be shown to be in the farmer's best interest to salvage the wood - and no one else wants to do it - then there should be no objection to bulldozing and berming.

Judging by normal practice, there appears to be a lack of knowledge about economical salvage techniques in landclearing. Indeed, many sites do not warrant bringing in logging equipment, and the techniques available to most farmers (chainsaw, pickup truck or tractor with trailer) may well not be economical. This is in fact an area which needs empirical research, if salvage is to be encouraged. Some economies might be discovered in the realm of Appropriate Technologies. A study for the Yukon Department of Economic Development, "Low Capital Technologies for Economic Development in Yukon" (Loeks, 1986) examined the performance of horses and a remarkable Swedish forest tractor in smaller-scale land clearing. The analysis indicates that economical salvage might be feasible using either power source in a carefully designed cutting plan. No field demonstrations have proved the possibility. This might be a suitable subject for research and extension work.

If the farmer has no interest in using the forest cover, there is little reason why the resource should not be offered to others, provided that development schedules are not impeded, and that the salvage does not cause extra problems when the clearing commences. One such problem could occur if stumps were cut so close to the ground that the bulldozer blade could not catch it. Access to the site across farmland might also be a sensitive point.

Salvage of wood within economical bounds can be achieved by requiring the farmer to file a landclearing plan. This plan

would indicate the location and bounds of the clearing, method of clearing, and whether usable wood would be salvaged. Performance criteria might be devised to ensure that these plans are followed. These would have to be derived according to the timber present on the site. If the landclearing plan indicates no salvage, the government agency could offer it to interested parties. Bonds could be posted for property damage.

This approach to stewardship of resources is not free: personnel must be available to work with the farmer, monitoring in the field, and administrating the agreements. The larger payoff would presumably be that the demand for forest products from wildlife habitats and recreational lands would be minimized. No extra costs to the farmer would occur: if he chose to salvage, it would be because of economic benefit. If he chose not to, someone else would have the chance.

PHASE II: MINING SUBSECTION

I. INTRODUCTION

The Yukon Placer Act and the Yukon Quartz Act are the most senior legislation in the Yukon. They permit almost anyone to stake a claim on unoccupied public lands. It may be mined subject to regulations, or held as a valid claim so long as $100 of assessment works or improvements are invested in it each year. Alternatively, $100 paid yearly to the government in lieu of claim improvements will maintain interest. A miner may even enter onto private lands, so long as adequate bonds are posted. Compensation may be awarded surface rights holders if damage is done. The Yukon Supreme Court will decide upon right of access and the value of compensation. The acts make clear that a property holder does not have the final authority to deny access to his land for mining purposes.

II. THE ALLOCATION QUESTION

The power of these acts cast potential conflicts with agriculture in a decidedly different light. In the previous sections (Trapping, Wildlife, Forestry) we were able to treat the allocation tradeoffs with agriculture as open questions. That is, we could examine the merits of being willing to trade off one resource against another.

This trade-off opportunity does not exist with mining, since there is no authority to prohibit or eject mining from any agricultural ground. Moreover, once allocated to agriculture,

there is no guarantee that mining interests will never gain access to a piece of land. The only balance against this would be the amount of compensation which could be defensibly awarded for pre-empting occupied agricultural land.

Should the presence of mining claims deter agricultural land disposition? No compensation would be awarded for mining damage if the claim preceded the agricultural activity. If the farmer were aware of this and was willing to assume the risk, there is no reason why this land should be witheld from disposition. (It might be sensible to disqualify such lands from public development assistance programs - why risk the public's money?)

III. OTHER CONFLICTS

Entitlement to compensation should not be considered an issue in potential conflicts between agriculture and mining. The guidelines are clear: agriculture is entitled only if it precedes the mining claim. Placer mining is extremely speculative, and most operations are chronically undercapitalized: it would take an unusually "sure thing" to enable a placer company to raise and risk a compensation bond. What is unclear is how compensation would be calculated. It is unknown if presumed market value would be the sole guideline, or if livestyle or other "soft" values would be estimated. Whether this would be adequate or fair is unknown: the occasion has never arisen, and, values for agricultural lands have not yet stabilized.

As indicated in the Phase I Report, the likelihood of conflict over riparian rights is remote. Present trends do not show much

overlap of mining and agricultural interests. No evidence exists for conflict over limited ground water supply: no hard rock mines are in agricultural districts - nor are they likely, since farmlands typically overlie deep layers of overburden. Placer miners almost invariably use surface waters.

Conflict over surface waters can occur in two ways:

- Sediment loading by placer mining making the waters too turgid for use in irrigation.

  This conflict has not in fact occurred and the trends show that the two activities will remain sufficiently separated that this problem will remain remote. Again the riparian decision rule would emphasize priority in time: if the miner was first, the farmer would have little leverage before the water licensing board. If the farmer were first, he could make a strong case that the miner's water license was contingent upon not harming the farmer's uses.

- Irrigation or other agricultural uses consuming sufficient water to inhibit placer operations.

  This has never occured in Yukon and the likelihood appears remote. However, "first in time, first in right" would again apply.

CONCLUSION: TOWARD A RESOURCE CONFLICT-RESOLUTION SYNTHESIS

In the Phase I Report, a range of resource conflict issues were identified, examined for significance, and analyzed for dynamics and origins. Principles for how competing resources might be valued were explored, as were the consequences of taking no action. In this Phase II Report, alternative approaches for addressing these problems were presented and discussed, bearing in mind the twin goals of reducing potential conflicts while facilitating agricultural development.

It might be noticed that in each resource sector, the more generalized, strategic-level issues tended to present the more difficult-to-grapple-with choices. The more focussed, specific issues appear inherently easier to cope with. It is more fundamental to decide if a trapline might actually bar an agricultural disposition than it is to settle upon techniques to ensure access across parcels. Moreover, the choices made on the strategic level often suggest or even predispose the solutions to the specific issues which follow. This suggests that the government must first grapple with the strategic-level before it addresses the operational-level issues. Get the foundation down before the walls go up.

It also appears that the whole field of agriculture/resource-conflict issues is greater than the sum of its parts. This has two meanings. Any resource, valued in isolation next to agriculture, may yield a lower value than when it is integrated with the other resources present in the landscape. This strong-

ly suggests that if resource values are actually to influence land allocation, they must not be examined serially, as isolated factors. Instead, resources which are environmentally grouped should be valued in integration.

The complexity and subtlety of doing this suggests the second point: sound resource valuation for selecting land disposals cannot be an administrative procedure. It is too big. It also cannot be the exclusive responsibility of professionals: the public must be incorporated. Not only are their interests in the land at stake, they also have vital information and perspectives which the professionals lack.

In short, if the government wants to take competing resources seriously by letting the "highest social value" determine land use, then: the government must commit itself to some sort of public resource planning process. Purely administrative processes will yield the highest public good only by accident.

TOWARDS A RESOLUTION OF RESOURCE CONFLICTS IN LAND-USE

There may be no "off-the-shelf" processes which will address strategic and operational-level resource conflicts while planning land-use in Yukon. Doubtless more than one can be devised. The following process sketches an attempt to address which lands should be released, and secondly, how the solutions chosen for operational conflicts might be implemented on farmlands. The policy choices and assumptions which determine the objectives of this sample process are hypotheses.

If it is decided that lands with agricultural potential will not automatically be allotted to farming, then some means must be designed to guide the selection process. Creating agricultural zones or districts is one way to concentrate impacts and limit the incidence of resource conflicts. Agricultural districts also provide the most efficient means of grouping public and private efforts for major engineering projects such as irrigation and controlling field runoff pollution. (Potential runoff from irrigated fields in the mineralized soils of the Takhini valley worries some water resource managers.)

If an agricultural district strategy is chosen, criteria must be devised to define the agricultural zones. One obvious criterion is agroclimatic capability: Class 5 and under might suffice. Another is reasonable access and proximity to community services and supplementary employment.

What about competing resource values? Various methodologies have been devised for valuing resources. Wildlife habitat, furbearing potential, timber, recreational potential, even scenic qualities can be estimated. These might have to be modified to fit the Yukon, but they can at least provide indicators to the importance of other resources on agricultural lands.

Additional criteria must be devised to make sense of the resource valuation data. Here is one possible criteria sieve,

expressed as objectives: (Any number could be devised, depending upon the objectives to be achieved.)

Objectives. Locate an agricultural district, and:

1. Maintain important wildlife values. (specify concerns)
2. Minimize the opportunity costs of foregone resources.
3. Minimize potential for conflicts between agriculture and other resources.
4. Use best agricultural soils with regard to preceeding objectives.

These objectives suggest what criteria might follow. Critical wildlife habitat would be an indicator for Objective 1. High values in forest resources or furbearer potential would be indicators for Objective 2. Active resource user-groups (trappers, hunters, woodcutters, recreationists) would be indicators for Objective 3.

Integrating the resource sectors has a bearing on these objectives. In a well managed situation, wildlife management, forestry, trapping, and recreation can be effectively balanced on the same site. It might happen that no single use will achieve its full potential, but the net value of all uses may be higher than the best single use. Such a site ought to be evaluated as the sum of the resource values present. It would be sensible not to allocate a high-value integrated site to agriculture, since this site would meet both Objectives 2 and 3. If this construct were adopted, a selection flow chart might look like this:

1. Site has critical wildlife habitat which cannot be duplicated?

NO (continue) — YES: Select for Wildlife

2. Site has Class 3 agroclimatic capability?

NO (continue) — YES: Select for agriculture subject to public consultation.

3. (Class 4 and 5 sites) Site has high values for Forestry/fur-bearers/recreation/wildlife complex?

NO (continue) — YES: Select for natural complex.

4. Site is highly used by more than one resource user group?

NO (continue) — YES: (refine data, obtain public input. Can be allocated agriculture if consultation indicates.)

5. Site has high value for any single resource sector?

NO: Select for agriculture — YES: (refine data, obtain public input. Can be allocated agriculture if consultation indicates.)

This process is not overly complex. It does require means of estimating resource values, and of obtaining the public's views. A collection of canditate sites for disposition would probably emerge from this process. These sites could in turn be mapped, and presented to the public in different configurations as planning alternatives.

Though this is only one of many hypothetical schemes for selecting agricultural land, it has several important traits:

- it attempts to gauge and meet the public good
- it attempts to measure and balance resource tradeoffs
- it attempts to reduce conflicts
- it would not prohibit agricultural development
- it does not expropriate the public's right to participate

It is simpler, less expensive, and more expedient to select in favor of agriculture on all suitable lands. Though this would effectively help establish farming in Yukon, it might have long-term costs in unresolved conflicts, and in suboptimal land-use patterns.

Farm Development and Management

With the allocation/selection matters settled, the farm management questions can be tackled. These would be guided by policy frameworks which outline the selected stance toward broad issues such as timber rights, trapping rights, or game ranching.

Farm management issues are the most specific of all. Two extremes must be balanced. One would impose identical requirements on all farms everywhere in advance. If universally applied standards are tightly defined, almost every farm becomes an exception and absurd results multiply. On the other hand, if standards are selected case-by-case - but are not bounded by clear policy - they easily become capricious.

Farm management standards, guided by clear policies, and applied to each specific case can yield the best results. It is important that management standards do not become an adversarial enforcement problem. Alaska uses two documents which are legally binding on a developing farm. The "Farm Development Plan" describes how the farm will be developed to meet the clearing and "proving-up" requirements. This is prepared by the farmer in response to the defined conditions which permit him

to occupy the land. It must be approved by the State. Chiefly, it sets the schedule for development.

The "Farm Conservation Plan" details the way in which the farmer intends to meet resource management concerns which have been identified for his parcel. Soil and water conservation concerns are the most common in Alaskan plans. Windbreaks, farm ponds, ditching, riparian habitat margins, field boundaries and woodlots are mapped, and public access routes and easements are specified. These plans may be modified, but they must be approved by soil conservation authorities, and by the Division of Agriculture.

Assuming one agrees that it is appropriate for society to influence (if not impose) operating standards on farm land, the Alaskan model has some merits. It is derived by the farmer in response to identified site conditions, rather than being imposed by authorities with rigid universal regulations. It can be modified. If some version of this model were adopted in Yukon, it would be at this level that fencing standards, garbage handling, trapper access, landclearing plans, and so forth could be addressed.

Compliance is necessary if these plans are to mean anything. This is monitored by extension agents and by inspection officers. Alaska maintains a powerful lever to ensure that public values are maintained: it confers only the right to farm the land - the State retains title. Although this is virtually an ironclad guarantee against future subdivision and land spe-

culation, it can inhibit a farmer's ability to raise capital. Two responses to this:

a. Grant title but install tight caveats against it. It is not known if it would be difficult to enforce farm conservation plan provisions after title is confered.

b. Retain title, but create a financial agency dedicated to promoting agricultural development. This would eliminate the concern about investment capital, retain public leverage over farm management practices, and eliminate speculation. Presumably those interested in just farming could accept this, provided that taxes and other levies reflect the fact that the land is not in fee simple.

Yukon still has much latitude for choosing its options in response to resource conflicts. The final criteria for its policy choices should be that of consistency with socially agreed-upon objectives.

APPENDIX 1

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APPENDIX 2.

Farm Development and Conservation Plan Papers: Alaska.

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF AGRICULTURE

FARM CONSERVATION PLAN
Pursuant to AS 38 and 11 AAC

Please Print: ADL _____

NAME _____

ADDRESS _____

_____

PHONE Home _____ Other _____

This Farm Conservation Plan contains covenants which the Purchaser agrees to and is required to perform pursuant to AS 38 and 11 AAC and the Contract for Sale of Agricultural Interest in State Land entered into between the Purchaser and the State of Alaska as Grantor. These covenants shall run with the land and any Patent which may be issued by the State to the Purchaser. The requirements of this document may be enforced by those methods set forth in the Contract, a Patent, the procedures set forth in 11 AAC, and any legal or equitable remedies.

Local Soil & Water Conservation District _____

Legal Description _____

COVENANTS:

1. The purchaser is required to separately submit and keep on file a Soil and Water Conservation Plan with the local Soil and Water Conservation District. The Soil and Water Conservation Plan is not a part of the State Farm Conservation Plan or the State Farm Development Plan. Recommendations in the Soil and Water Conservation Plan are not contract items and compliance is voluntary.

_____ _____
Chairman, Soil & Water Conservation District Date Reviewed

2. Purchaser is required to use management practices reasonably designed to prevent pollution of water and to prevent soil erosion greater than applicable soil loss tolerances estimated by Soil Conservation Service guidelines.

3. The purchaser agrees to develop the farm and operate according to the data in the sale brochure for this parcel. The development map may be modified upon request of the Grantee by the same administrative process that is required for approval of the original plan.

SUMMARY of data required to be shown on attached Farm Conservation Plan Map (legend attached).

Farm Conservation Plan Map:

map scale _____
total acres _____
farmstead acres _____
cleared acres _____
pasture acres _____
access roads _____
legal easements _____

Real Property Improvements:

Map #	Improvement Type	Size
1.	_____	_____ sq ft
2.	_____	_____ sq ft
3.	_____	_____ sq ft
4.	_____	_____ sq ft
5.	_____	_____ sq ft
6.	_____	_____ sq ft

_____ _____
Purchaser/Grantee Date Agreed

_____ _____
Director, Division of Agriculture Date Approved

10/176a
Rev 1/85

Ed. Kern

FARM DEVELOPMENT PLAN

INFORMATION SHEET

EIELSON AGRICULTURAL INTEREST SALE

A Farm Development Plan will be required on all parcels sold in the Eielson Agricultural Sale. The Farm Development Plan is a schedule of required agricultural development and for this sale is as follows:

Time Period	* % of Cropland Soils into Production
by September 1, 1985	20%
by September 1, 1988	40%
by September 1, 1991	60%

* Placed into production is defined as land cleared and planted into crops such as grains, oil-seeds, vegetables or grasses at seeding rates recommended for the area by agencies such as the University of Alaska Experimental Station and/or Extension Service.

The Farm Development Plan will be monitored by the Division of Agriculture on a yearly basis. Failure to meet the requirements of the development plan may be cause for termination of the contract.

Soil data summaries for Eielson are as follows:

Parcel No.	Acreage	% Class II/III Soils	Acreage Class II/III Soils	Overall Acreage into Production by 1991
7006	307.50	69%	212	127
7007	315.53	95%	300	180
7011	222.43	93%	207	124
7010	320.00	90%	288	173
7009	639.87	63%	403	242
7008	319.92	72%	230	138
7012	123.33	36%	44	26
7014	160.00	63%	101	61
7016	320.00	93%	298	179
7013	193.94	80%	155	93
7015	160.00	98%	156	94
7017	160.00	98%	156	94
7018	322.52	76%	245	147
7019	240.00	100%	240	144

Ralph Van Rennan
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FARM CONSERVATION PLAN

INFORMATION SHEET

EIELSON AGRICULTURAL INTEREST SALE

All successful applicants of the Eielson Agricultural Sale will be required to submit a Farm Conservation Plan as a condition of sale in accordance with 11 AAC 67.177. The plan must be reviewed and approved by the local Soil Conservation Subdistrict and the Director of the Division of Agriculture. Assistance will be provided by the Soil Conservation Service and the Division of Agriculture in constructing your plan. Please submit your plan to the DIVISION OF AGRICULTURE, POUCH A, WASILLA, AK 99687 not later than 4:30 p.m. on August 13, 1982.

The Farm Conservation Plan must show the following:

1) The location of the farmstead and the statement of those real property improvements to be placed on the farmstead.

2) Access routes and easements.

3) The location of lands to be cleared and place into agricultural production in accordance with any farm development schedule.

4) Soil conservation measures to be employed.

5) Location of windbreaks, farm ponds and similar conservation measures and improvements.

6) See attached sheet for additional details on completing the Farm Conservation Plan application.

Plans may be modified upon request; however, any modifications must be reviewed and approved by both the Fairbanks Soil Conservation Subdistrict and the Division of Agriculture. To modify your plan, a form entitled "Modified Farm Conservation Plan" must be submitted to the Division of Agriculture.

Field checks may be made by the Department of Natural Resources at the request of the landowner or when it is deemed necessary to ensure that proper soil conservation measures and timber disposal methods are being conducted.

For your information, the following contact is available to provide technical service and assist with preparation of the Farm Conservation Plan:

Jim Vancura
District Conservationist
Soil Conservation Service
1760 Westwood Way
Fairbanks, Alaska 99701

Phone: 479-6767

(3)

SAMPLE: OVER A DOZEN ISSUE-AREAS CAN BE ADDRESSED

USDA-SCS
SCS-69 (9-62)

COOPERATOR _____
ASSISTED BY _____
DATE _____

RECORD OF COOPERATOR'S DECISIONS
AND PROGRESS IN APPLICATION

FIELD NUMBER	PLANNED		APPLIED		PAGE
	AMOUNT	YEAR	AMOUNT	MONTH AND YEAR	LAND USE AND TREATMENT
					LAND CLEARING: When vegetation is small enough that roots pose little problem, winter clearing (frozen soil conditions) is preferred over summer clearing. Timber will be harvested for firewood, lumber, or houselogs prior to clearing wherever feasible. Summer clearing will be utilized whenever it is necessary to tip large trees to pull out the root crowns. Root systems of large trees pose serious problems with land breaking and farming operations when the tree crown is left in the ground. Summer clearing is also feasible on permafrost soils as long as the mineral soil remains frozen. Under these conditions, clearing will proceed in a continous manner so tractors are always working on frozen soil When the soil begins to thaw, clearing will be halted until it refreezes. One or more of the following clearing methods will be used: 1) Berm row method - generally good for larger trees and vegetation (moderate to small amounts of moss). Avoid snow in berms. 2) Shearing/broadcast method - vegetation burned in place after shearing from frozen soil (angled blade for vegetation to 2½" stems or vee blade for up to 8" stem sizes). 3) Rotary mower method - applicable to sites of light vegetation (woody stems less than 2½" in diameter). More detailed information on these clearing methods is available at local SCS field office. Note - The Alaska Division of Forestry will be contacted prior to burning vegetation in berms or after shearing. All burning will be done in compliance with state regulations.

51

USDA-SCS
SCS-69 (9-62)

RECORD OF COOPERATOR'S DECISIONS AND PROGRESS IN APPLICATION

COOPERATOR _____
ASSISTED BY _____
DATE _____

FIELD NUMBER	PLANNED		APPLIED		PAGE LAND USE AND TREATMENT
	AMOUNT	YEAR	AMOUNT	MONTH AND YEAR	
					CONSERVATION CROPPING SYSTEM A conservation cropping system will be employed to improve and maintain good physical condition of the soil, protect the soil from erosion, help control weeds, insects, and diseases and provide for an economic return. A good cropping system is based on the most current information available and is therefore constantly evolving. Components of the cropping system are soil types, climate, adapted varieties, crop rotation, tillage methods, use of crop residues, natural and manufactured fertilizers, green manure crops, insect, weed, and disease control, irrigation, equipment needs, and market demands. Information and assistance is available from: Soil Conservation Service Cooperative Extension Service University of Alaska Agriculture and Forestry Experiment station and other public and private agencies

(9)

FARM CONSERVATION PLAN MAP

Your map must contain all of the following:

1) The local soil conservation subdistrict must be listed.

2) The correct legal description must be listed from brochure.

3) The map scale to be used must be 4 inches = 1 mile (one inch = 1320 ft). Assistance in determining map scale cam be obtained from the Soil Conservation Service or the Division of Land and Water Management.

4) Total estimated farm acreage must be listed. This acreage can be found in the disposal brochure.

5) An outline map of the property should be prepared to scale on an attached sheet.

6) Map symbols must conform strictly with the attached legend. This legend will be filed and recorded with the contract and the title document.

7) The area to be cleared and cultivated must be shown.

8) Access, both existing and proposed, must be shown.

9) If a farmstead is planned at this time, its location should be shown.

10) If buildings are planned, their type, size and location must be shown and numbered within the farmstead area, and listed by type and size in square feet.

11) Other uses of land such as pasture, wood lot, or wildlife may be indicated.

12) The location of soil conservation improvements such as windbreaks and drainage ditches must be shown. The need for soil conservation improvements can be determined through the assistance of the Soil Conservation Service and can be referenced to the "planned soil conservation measures".

13) Any easements or reservations must be reflected in the plan. Assistance can be obtained from the Division of Land and Water Management and from the Disposal Brochure.