COMMON PROPERTY RESOURCES AND HUNTING TERRITORIES

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La territorialité dépend de l'intensité de l'usage qui est faite d'une région et de ses ressources, et selon lesquelles on ne peut parler de territoires que lorsque les bénéfices découlant de leur possession sont plus grands que les coûts liés à leur défense. Ainsi, un modèle explicatif des territoires de chasse doit être dynamique afin de s'adapter aux changements dans l'intensité de l'utilisation des ressources, et dans les institutions de la propriété commune tels que ceux gouvernant la territorialité.

Selon le modèle proposé dans cet article, les modèles d'utilisation des ressources vont du contrôle fondé sur la communauté au contrôle fondé sur la famille avec intensification, comme dans la commercialisation des prises de castors. Cependant, si le contrôle basé sur la communauté ou la famille se rompt (comme dans le cas d'une intrusion), certaines conditions d'accès peuvent être créées en résultat de l'épuisement des ressources. Les institutions de la propriété commune peuvent être rétablies avec la réaffirmation du contrôle local des ressources.

Territoriality is related to the intensity of use of an area and its resources, and territories are possible only when the benefit of holding a territory exceeds the cost of defending it. Thus an explanatory model of hunting territories needs to be dynamic to accommodate changes in the intensity of resource use and common property institutions such as those governing territoriality.

According to the model proposed in this paper, resource use patterns shift from community-based control to family-based control with intensification (as in the commercialization of the beaver harvest). However, if community- or family-based control breaks down (as in the case of intrusion from outside the area), open-access conditions may be created, with resultant depletion of the resource. Common property institutions may be restored with the reaffirmation of local control of the resource.

Family hunting territories among various native groups of the eastern Canadian Subarctic have been dealt with by some scholars as an isolated and unusual phenomenon perhaps linked to the fur trade (see Tanner in this volume). However, territorial use of resources is widespread throughout the world. There are examples involving many resource types (wildlife, fish, forests, edible wild vegetation, grazing lands, some agricultural lands); documentation is available from just about every part of the globe. Debates on Northern Algonquian family hunting territories have largely ignored the relatively large theoretical literature on territoriality and common property resource use in general. Thus reappraisal of family hunting territories may benefit from relevant experience elsewhere and the theory based on that experience.

A territory has been defined by E. O. Wilson (1975) as "an area occupied more or less exclusively by an animal or group of animals by means of repulsion through overt defense or advertisement." From an ecological point of view, territoriality is generally considered a practice with survival value; it is an adaptation to help establish a match (not a fine balance) between population size and the resources needed to sustain that population. As Pyke et al. (1977) state, "If an animal had such exclusive use of an area, then it could 'manage' its resources for 'sustained yield' rather than maximize the initial yield at the cost of poorer yields later." As a social phenomenon found in diverse human groups, territoriality appears to be used commonly by the local group to control outsiders' access to a resource. A selective survey of fishing societies reveals that control of access, not territoriality per se, is important (Berkes 1985). In many cases closing access makes it possible to avoid "the tragedy of the commons." Members of a group that practices territoriality or forms of access control reap the benefits of their own restraint. By contrast, under open access conditions whereby there is a "free-for-all," an individual resource-user has strong incentives to deplete a resource today as efficiently as possible; whatever is left behind may be harvested by someone else tomorrow.

This paper will argue that territoriality may be considered an aspect of control of access within a common property resource management system (see Note 1). Territoriality is a topic in its own right in animal ecology but part of the larger subject of common property resource management in human ecology. Animal groups and individuals may have territories, but human groups have common property institutions, which include decision-making arrangements, rules for resource harvesting and sharing, as well as territorial practices (see Note 2). Detailed ethnographic studies show that territoriality among Northern Algonquians does not exist by itself but is an integral part of a religious ideology that governs hunting practices (Tanner 1979).

In approaching the hunting territory debate, first, two relevant principles of ecology will be described. Second, these principles will be applied to the land tenure system of the Chisasibi (formerly Fort George) Cree in eastern James Bay, Québec. The information used is based on a series of sessions in 1984 and 1985 with a self-selected working group of the local Chisasibi Cree Trappers Association. Third, the question of the origin of family hunting territories will be addressed with a model to describe the relations of some of the major variables.

PRECONDITIONS FOR TERRITORIALITY

In general, it is held that territoriality is possible only when the benefits from holding a territory exceed the costs of defending it. The concept was originally borrowed from cost-benefit studies in economics and used in ecology for analyzing the feeding territories of birds (Brown 1964). It was adapted for use in ecological anthropology by Dyson-Hudson and Smith (1978). These authors considered that a resource must be sufficiently predictable and abundant to permit the development of a geographically stable territorial system for its use. However, ongoing work in ecology suggests at least one additional condition. It has been found that territoriality occurs within certain maximal and minimal limits in the abundance of the resource in question (e.g., Carpenter and MacMillen 1976). It does not occur if the resource is very scarce, relative to demand, or superabundant.

Figure 1 shows the three conditions that generate territoriality: resource productivity and predictability must be relatively high, and the resource must be limiting.

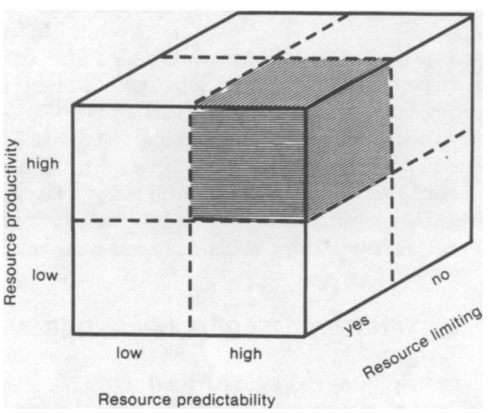

Figure 1: Ecological Determinants of Territoriality in Resource Use: The Resource Should be Relatively Productive, Predictable, and Limiting.

Each of the three axes is arbitrarily divided into two parts; in reality, there would be a continuum. While resource productivity is relatively easy to measure using ecological techniques, there is no commonly accepted method of measuring whether a resource is limiting or predictable. Nevertheless, experts can usually agree on whether a resource type is predictable or not. For example, in the northeastern boreal forest, moose is a predictable resource (Feit 1973; Winterhalder 1981), but further north, caribou is not. Beaver is a predictable resource, as most stationary resources must be. Even though it is a migratory species, Canada goose is a predictable resource for the Cree because it is found in the same areas and habitats from year to year, much in the same way as some other migratory species, such as Pacific salmon (Berkes 1982).

While Figure 1 specifies three of the more important conditions for the formation of territories, there are other points and qualifications. For example, resources are culturally defined. Shellfish resources, in particular mussels (*Mytilus edulis*), are abundant in some places in James Bay. They are, however, almost never used by the Cree. By contrast, on the British Columbia coast, native groups not only use shellfish as food but also have territories based on them (Richardson 1982). Related to the requirement that benefits must exceed costs of defense, Oakerson (1986) has pointed out that defensibility requires *excludability*; that is, are the holders of a territory able to limit outsiders' access? Another requirement is *divisibility*; that is, could the resource feasibly be divided into individually or family-held units? However, we must not overemphasize defensibility. Where areas to be defended are large, some system of cooperation and reciprocal use-rights with adjacent territory-holders may well develop. This is indeed the case with current hunting territories in the James Bay area.

Further, measuring the costs and benefits of territoriality is not easy. The same is true for "optimal foraging strategies," in which cost-benefit analysis is also used (Pyke et al. 1977). Ecologists have used two "currencies" to measure costs and benefits: energy and, less commonly, time. While optimal foraging theory has been applied in human ecology (e.g., Winterhalder 1981), quantifying the costs and benefits of different harvesting strategies often requires risky simplifications and assumptions.

INTENSITY OF RESOURCE USE

Territoriality is generally related to the intensity of use of an area and its resources. This consideration adds a time dimension to the preconditions of territoriality. The best documentation of the principle comes not from biological ecology but from ecological archaeology and history. Over time, the demand upon a resource changes with population pressure and technology.

The usual trend, of course, is toward increasing intensification of resource use. The increasing pressure on grazing lands in ancient Europe resulted in the fencing of common pastures; similarly, the increasing pressure on common field agriculture resulted in the emergence of private ownership of agricultural land.

The increasingly intensive use of fish and wildlife resources produces more tightly organized common property institutions. In less tightly knit institutions, communities may control outsiders' access to a resource but allow their own members equal access to it, under commonly accepted rules of resource use. In the case of more tightly organized institutions, there may be a "nesting" of rights; the community controls the resource but certain members have special rights and duties in use and coordination of use. Historical data on reef and lagoon tenure in Oceania indicate the full range of institutions from the least tightly organized to the most (Johannes 1978). For example, with depopulation following colonization, individual and family fishing territories (more intensive use) disappeared in parts of Oceania, leaving intact the more general fishing territories (less intensive use) of groups of villages (ibid.).

A good example of nested fishing rights may be found among the Nishga of the northern British Columbia coast. There, the Nishga tribe as a whole claims the entire watershed of the Nass River. Individual Nishga communities claim parts of it, and individual senior fishermen/family heads claim "ownership" of specific salmon fishing sites along the river (Berkes 1985). Nishga salmon resource use is perhaps at the most intensive level and as "advanced" as it could possibly be, since it is not possible to privatize individual fish.

Does the commercialization of the resource give rise to territories? The Nishga fishery supports both commercial and subsistence harvests; it is not easy to study the effect of commercialization on territoriality in the subsistence fishery because the commercialization of the salmon fishery throughout the Pacific northwest destroyed native use-rights systems, creating open access (Richardson 1982). Perhaps more informative is experience in northern Borneo, where longhouses have traditional fishing rights to the streams and lakes within their territories. These rights tend to be enforced loosely in most areas. However, in the Tinjar-Bunut area, where commercial fishing is now carried on, there is rather strict enforcement of fishing territories by each longhouse (Dwight Watson, personal communication) (see Note 3).

Commercialization intensifies resource use; so does population growth. The anthropological literature documents the effects of population growth. Smith and Young (1972) argued that population growth and agricultural development by intensification

in Mesopotamia spurred each other in a positive feedback relationship. Population growth facilitated increased production through adoption of more intensive land use practices and technology—first the digging stick, then the hoe and, later, the plow (Smith and Young 1972).

It is not yet clearly established that common property institutions evolve with more intensive use of resources. This idea, however, appeared to be one of the emerging principles of common property use at a recent conference on this subject (National Research Council 1986). Evidence concerning different kinds of resources in various parts of the world suggests that common property institutions emerge as a previously superabundant resource becomes relatively scarce. Intensification may also result in privatization, where the nature of the resource allows (e.g., agricultural land). Or it may result in the breakdown of common property institutions, if the local community loses control of the resource and/or if demand for the resource becomes too great for existing institutions to cope with it. These ideas will be explored with a model, following a description of the existing Cree hunting territory system in the James Bay area.

CHISASIBI CREE HUNTING TERRITORIES

The Chisasibi Cree use hunting territories in a manner generally similar to the Mistassini Cree (Tanner 1979), the Waswanipi Cree (Feit 1978), and the Wemindji Cree (Scott 1983). There are currently two kinds of hunting territories: for beaver, with a "beaver boss" (*amiskuchimaau*) in charge; and for goose, with a "goose shooting boss" (*paaschichaauchimaau*) (see also Scott in this volume). These resources, however, are not considered to belong to individuals or families. Hunters say: "Land cannot be bought or sold, it cannot be individual property. Land will still be there after people die. Land really belongs to God; He put the animals there" (see Note 4).

For lack of a better word, many Cree, when speaking in English, refer to "ownership" of the land. But the mechanics of transfer of such "ownership" make it clear that the Cree do not see land as "real estate":

> I own the land on which I hunt and trap. When I was a young hunter, my uncle owned that land. One day the old man said that he was in the process of handing the land over to me. "You will look after this land, take care of it as a white man would his garden," the old man said. "It is up to you to protect, preserve, make rules where necessary and enforce good hunting practices. You will look after it as I have shown you in the past. You will also look after your fellows and share what you have on the land if they are willing to practice their way of life," the old man said. My uncle

> handed down the land to me as his elders handed it down to him. He gave me the land to look after; he did not sell me the land or ask for anything in return. (Berkes 1984-1985)

"Ownership," according to the Cree, involves keeping traditional law and order in that area, ensuring that the land is not abused, and overseeing the sharing of resources. Thus, it makes sense that "ownership" rests with the beaver or goose boss, the senior hunter, who knows the area best and is most able to fulfill these two functions. As the Cree point out, "the boss is really given not the animals but the *responsibility* for distributing the wealth of the land."

In the traditional Cree sense, "ownership" (*nitipaaihtaan*) of the land and animals is different from the "ownership" (*nitipiiwaawuiiun*) of personal property, of things that can be bought and sold. *Nitipaaihtaan* really means control, custody, and stewardship. Vincent and Mailhot (1982) indicate that the Cree word *tipaaihtan* (or *tipenitam* in Montagnais) translates literally as: "He matches, fits it, to his thinking"; idiomatically, "he has control, mastery over it." The term is commonly used whenever notions of "power" and "control" are implied. Contexts indicate that this word combines the meanings "to manage," "to be responsible for," "to have power over," "to be the master or boss of," and "to control" (José Mailhot, personal communication).

Analysis of the duties and responsibilities of hunting bosses, as described by Chisasibi Cree hunters, shows that the term *control* describes very well the day-to-day function of the hunting boss. The beaver boss's duties and responsibilities include the following:

1. No one can trap on a given trapline without his permission.
2. He sets the beaver quota; that is, he determines how many beaver may be safely harvested from that trapline.
3. He sets the dates for the trapping season. For example, at the end of March, beaver traps should be taken out of the water, and so he gently reminds his trappers to do so.
4. He ensures that no traps are left behind at the end of any trapping season.
5. He reminds his trappers to stay within the boundaries of their proper trapping area.
6. If hunters happen to wander into other traplines while in pursuit of other game and spot a new beaver lodge, it is his responsibility to pass this information on to the beaver boss of that other area.
7. In some traplines where there may be more than one camp (or group) of hunters, he may delegate authority to the leader(s) of those other camps.
8. With game other than beaver, it may be necessary that the hunter who knows the area best direct the hunt; often this hunter is the beaver boss. Hunting leadership was especially

important in the past when, for example, caribou were scarce and extreme care had to be taken in the hunt.

9. If people are passing through a trapline, it is expected that they will kill what they need for food. Normally, however, they will inform the beaver boss that they intend to be on his land and what their activities will be.
10. People will take what they need of staple resources such as fish and small game without prior permission. But if they are going fishing and small-game hunting for, say, a week, then it is expected that they will inform the beaver boss.

The goose boss's responsibilities include the following:

1. To hunt in a given area, others are expected to obtain his permission and agree to hunt under him.
2. He makes the hunting plan in consultation with others.
3. He decides where as well as how the day's hunt is going to take place.
4. He rotates his hunting locations to let areas rest and the geese feed unmolested.
5. He tries to ensure that no one: shoots into major feeding flocks of geese;
6. shoots on a calm day, scaring the geese and spoiling the hunt for the others;
7. shoots a half-hour after sunset and before sunrise;
8. builds a fire in the open, as fire scares away the geese;
9. hunts on a Sunday (hunters should group themselves on Sunday to make it easier to enforce the no-hunting rule).
10. The goose boss ensures that all the hunters in his group get an equal chance to shoot and obtain the food they need.

In general, the boss acts as a gatekeeper, controlling access to the resource. But he does this for the benefit of the community as a whole. He maintains the traditional law and order in an area. Since the rules have already been accepted by the hunting community as a whole, he is merely enforcing the consensus. A hunting leader who abuses his authority and/or violates rules himself may lose his authority (and there are examples of this in recent times). The boss derives his authority from the community, and if he does not serve the community well, he will come under social pressure (see Note 5).

The hunting leader regulates relations not only between hunters and game but among hunters. Especially important is the sharing of game:

> Sharing of the wealth of the land is central to Cree culture. Sharing is especially important at the time of need. When you give your kill to someone, you are showing respect to that individual, honoring him. At the same time, sharing at the time of need brings respect/reputation to the hunter who does that. If I were a visitor to your bush camp, you

have to share your food as best you can. This is a show of respect for a visitor. It is assumed that a visitor is tired and hungry, as he would have had to cover a long distance through the bush to get from one camp to another.

In some cases, hunters may decide to pool their harvests. They may divide the kill equally, regardless of who did the actual killing. This may be done with fish, ducks, guillemots, muskrats—animals that would be harvested in large numbers. Once this was done even with beavers. While not an everyday practice, redistribution of the harvest by pooling ensures equal shares. It also signifies mutual respect among the hunters and establishes friendship bonds among them.

Families sharing a bush camp may decide to keep their catches separate. However, if one family does not kill anything for a day or two, and the other families do, there will be sharing. Such sharing within a camp works both ways, because sometimes one group and other times another group may be short of food. Sharing among families ensures that all get enough to eat, and forms bonds among them. As the tallyman (beaver boss) has responsibilities for the distribution of the harvest, it is he who oversees that justice is done in sharing food.

In some cases, not only food but animals may also be redistributed. A successful hunter may decide to give his animals to someone else. Say there are four families sharing a bush camp and trapping together on a trapline. This one hunter finds a new beaver lodge. He goes back to the camp and takes with him a piece of wood with toothmarks made by a beaver from this new lodge. At first, he does not mention his find to the others. After having food and drinking tea, he mentions the new lodge. Then he takes the stick cut by the beaver and hands it to the person he wants to give the beaver to. He says, "I give you the beaver lodge." This individual becomes the owner of the lodge and all the beaver in it, as if he had found it himself. (Berkes 1984-1985)

The material summarized above indicates that the family hunting territory is merely a small part of a larger resource use system with rules, practices, and ethics. Focusing only on territoriality and on one species (beaver) gives a distorted picture of the overall resource use system. The Cree themselves do not make a distinction between "commercial species" and "subsistence species." Hunting bosses restrict access to all resources, some resources more than others. All resources are subject to the overriding principle that no one can prevent a person from obtaining what he needs for his family's survival. That principle applies to all species, including beaver. There is, nevertheless, a dynamic tension between the hunting boss's authority and the right of each band member to hunt for his needs.

The beaver has a special place in the resource use system: it is an important species, for both meat and fur, and is easier than other species to manage by territories. By contrast, the otter, another important fur species, is not a sedentary animal and cannot be managed by territories. The hunter who encounters an otter does not go looking for the "owner" of that territory; he shoots the otter first and informs the hunting boss later.

Goose hunting practices are particularly relevant with regard to the family hunting territory controversy. The catch of Canada goose (*Branta canadensis*) is the largest item in the Chisasibi harvest. In harvesting effort (kilograms per person-day), the productivity of goose hunting is much higher than that, for example, of fish (Berkes 1979). The goose is not a commercial species. In the oral history of Chisasibi, goose territories are linked to the Hudson's Bay Company's provision of ammunition to senior hunters so that they would procure geese for their post. But this cannot be the sole explanation for the existence of goose territories: Although the Hudson's Bay Company was also active in Waskaganish (Rupert House), there are no goose territories there.

The difference between Chisasibi and Waskaganish must lie with differences in the nature of the land and resource. Rupert Bay offers easy access to all hunters of the community. Thus, in Waskaganish, the resource is not divisible; no hunter could control access or defend the resource against others who do not want to submit to his authority. By contrast, in the Chisasibi area the coast is extremely indented and the distribution of geese is patchy. There, local knowledge becomes very important in coordinating and executing the harvest.

In Chisasibi, the goose territory system has recently been revamped and rejuvenated in response to the crowding of the coast. Since the early 1970s, more and more inland beaver trappers have joined the spring and fall goose hunts on the coast. What occurred is explained by the Cree hunters:

> The goose boss system is historically old. But it is especially relevant and important in the 1980s because there are large camps with ten to fifteen families and forty to sixty hunters, rather than two to three families and some ten hunters. This makes it essential that there be someone in the camp in a leadership position to organize the hunt and to see that the proper practices are used.
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> The goose boss system was almost abandoned in the years leading to the James Bay Agreement (1975). This was because the agreement was interpreted by some people as giving individual freedom to all hunters. But the system was revived a few years later when it became clear that uncon-

trolled individual hunting meant lower kills for everyone. (Berkes 1984-1985)

The rejuvenation of Chisasibi goose hunting territories is a good illustration of Brown's (1964) concept of "economic defensibility" in practice. The resource in this geographic area is intrinsically divisible and defensible. Yet unless there is consensus within the community of hunters that rules of territoriality must be enforced, the resource is not economically defensible. That is, the goose boss cannot afford the time and energy to patrol his hunting territory to make sure that only authorized hunters are present and following the proper procedures—unless he is backed up by the community as a whole. Only when it finally becomes clear that the open access is resulting in a "tragedy" for all, in terms of loss of productivity, will the community of hunters decide to reinforce the goose territory system. Only then can the goose boss exercise his control.

While the system does not work perfectly (some of the younger hunters still abuse it), backing by the community enables the goose boss to enforce the rules and makes it difficult for those who refuse to submit to his authority. Once more, community interest takes precedence over individual self-interest. The users are not helpless in the "tragedy of the commons"; they take corrective action. The goose boss does not, and cannot, pursue his own self-interest, either. Rather, he is the executive who supervises resource use in the interest of the community. Members of his family assist him; they are well qualified to do this because, in general, their knowledge of the land is better than that of other hunters with traditional territories elsewhere.

A quick survey of the major animal resources exploited by the Chisasibi Cree shows that the conditions specified in Figure 1 are good predictors of whether or not a resource will be used on a territorial basis. Canada goose and beaver are both productive and predictable resources in the Chisasibi area, the former on the coast only, the latter everywhere. They are also limited, not superabundant, resources. By contrast, fish and small game are considered "staple" resources, always available at some level of abundance and non-limiting. There are no territories based on these resources. Nevertheless, the hunting boss prefers to be informed about intensive fishing and small game hunting in his area; once in the bush for more than a few days, a hunter has access to all the other resources as well. (In other geographic areas where fish, such as Pacific salmon, is a critical resource, there may be fishing territories.) Among other animal species, black bears and moose are valuable, although in the Chisasibi area they do not occur in sufficient abundance to warrant territoriality. The situation with these two species in Chisasibi is comparable to that of beaver in Whapmagoostui (the Cree part of former Great Whale River). There are registered traplines on the

books but no functional beaver territories; beavers are not abundant enough to make territories worthwhile.

Caribou have reappeared in the Chisasibi area only in the 1980s; it is difficult to say whether this species could be used on a territorial basis. The families who traditionally occupied the northeastern Chisasibi area were caribou hunters, great travelers who wandered over vast distances looking for caribou herds. Although caribou is a productive and critical resource, it is unpredictable and therefore unlikely to require hunting territories.

HUNTING TERRITORIES: A MODEL

The use of common property resources generally changes over time, as does territoriality. These changes would not necessarily be unidirectional; there may be cycles in resource use systems over time. In the eastern Subarctic, evidence indicates what appears to have been three great cycles in the abundance of beaver since the beginning of the fur trade (e.g., Feit 1978). Thus, an effective model of hunting territories must be both dynamic and able to accommodate cycles in resource use patterns and abundance.

The model also has to identify major variables important to hunting territories. The model proposed in Figure 2 identifies the following variables consistent with the argument in this paper: intensification of resource use caused by population growth and other factors; commercialization (specifically, the fur trade); technological change; and the creation of open access by such factors as periodic and destructive competition among fur producers and buyers. The creation of open access conditions is assumed to destroy local control mechanisms and common property institutions, including the practice of territoriality.

According to the best evidence at hand, including oral history in Chisasibi, the most likely state of affairs at the time of contact is shown on the left side of Figure 2. The land was held in common at the level of the band or sub-band. For example, there were groups of families who traditionally occupied the Seal or Roggan Rivers area in the north coastal part of Chisasibi. There were different groups in the interior, the ancestors of Chisasibi inlanders, many of which did not move to the coast until the late nineteenth century. Local groups may have been fairly stable, with hunters exploiting land most familiar to them. As the Cree prefer to express it, hunters are more likely to be successful when "the land is familiar with them." There was much fluidity, and hunting lands were not clearly demarcated. The proposed model is not dependent on the above assumption, and one could just as well start with the assumption that there were at that time family hunting ter-

ritories. Subject to the ecological preconditions outlined above, hunting territories are ecologically feasible with or without the fur trade.

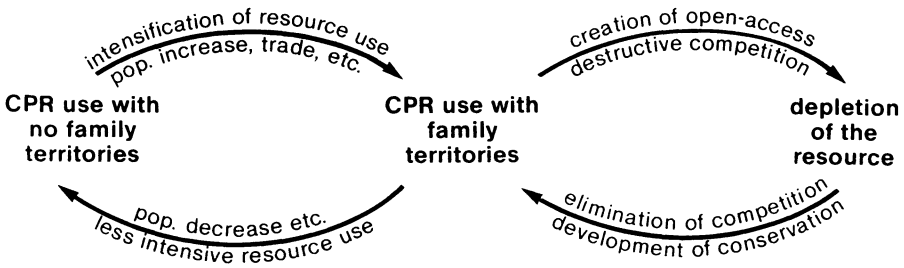

Figure 2: The Relationship Between Common Property Resource (CPR) Use and the Development of Common Property Institutions and Conservation Practices: A Systems View.

Family hunting territories were more likely to appear, however, with intensification of resource use because increased rates of exploitation necessitated more careful husbanding of the resource. Although the fur trade triggered more intensive use of beaver, marten, lynx, fox, and even Canada goose resources, intensification, not fur trade, was the control variable according to the model (see Note 6). Intensification could have been caused by changes in technology and population growth, even in the absence of the fur trade. After 1670, the demand to create a surplus resulted in the tightening of the rules and practices of common property resource use. After the start of the fur trade, greater care had to be taken with the harvest. Hunting bosses thus became more important. Over time, these new institutions may have remained stable or reverted to a more loosely managed system when there was a reduced market for fur or depopulation due to epidemics.

If the appearance of family hunting territories from the more general community hunting territories is one possibility, the creation of open access conditions is the other (Figure 2). Destructive competition between two rival fur companies vying for market control, itinerant fur trappers (Francis and Morantz 1983:130-132) with no regard for the local resource use systems,

and the coercion of the local trappers themselves all appear to be part of a recipe for depletion of the resource (see Note 7). While the story is familiar to students of the fur trade, the key aspect of the failure of the territory system, according to this model, is the creation of open access. The trapper can no longer reap the benefits of his own restraint. Once local control has failed, if the trapper does not harvest the resource first, someone else will. A true "tragedy of the commons" is created, and the native trapper (or the native bison hunter in the West) becomes both the villain and the victim in the depletion of his resource.

Nevertheless, the system is likely to recover. Diminishing returns to the trapper make it unlikely that beaver would be completely depleted thoughout large areas. However, with overhunting, the yield will diminish until there is a resource collapse, which may result in the demise of the less viable fur companies as well, making likely a merger or consolidation. That, in turn, would result in generally more cautious, conservation-oriented approaches on the part of the surviving fur company. Alternatively, the government may decide to protect the fur producer from outside competition and also initiate conservation measures involving closed seasons and beaver preserves. Since the resource in question is renewable, it should recover with protection. The key aspect of recovery is not biological conservation or the economic wisdom of the fur companies, but the restoration of closed access. Just as living resources can recover from past abuses, so common property institutions apparently bounce back when the local community can once more control and manage land and resources.

SUMMARY AND CONCLUSIONS

There are ecological and economic principles that specify boundary conditions regarding territoriality in general: resource productivity and predictability must be relatively high, and the resource must be limiting.

To understand resource tenure systems in general, and the family hunting territory system in the Canadian eastern Subarctic in particular, I have suggested a shift of emphasis from territoriality to common property resource management. Territoriality is merely one practice regulated by institutions for common property resource management. These institutions also make up and enforce rules regarding, for example, hunting practices and the sharing of game.

Common property institutions and practices change over time, and respond to conditions of resource scarcity. With increasing demand on a given resource, for example, management often becomes more intense, and there is a gradual restriction of access to the

resource. Common property institutions weaken under open access but may be reinstituted when closed access is restored. An explanatory model of hunting territories has to be dynamic and capable of accommodating such cycles in resource use patterns and animal abundance.

According to the proposed model, the fur trade was not the primary reason, or "control variable," for development of the family hunting system; intensification of resource use was. Could territoriality be an aboriginal institution? An answer to this depends upon the nature and importance of the resource. Beaver and goose hunting territories are ecologically possible in the eastern James Bay area; hunting territories for caribou, fish, and small game are not. The fur trade was no doubt important in the intensification of the use of the beaver resource, and may have triggered the shift of the resource use pattern from community-controlled to family-controlled territories.

NOTES

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1. The term "common property resources" is used here in the sense of communally owned resources (Ciriacy-Wantrup and Bishop, 1975).

2. Institutions involving common property resources are, by definition, communal. In response to a referee, there are no such things as individual institutions; individuals act as "stewards" on behalf of the community, as in the case described by Scott in this volume. (In Wemindji, goose hunting territories make sense only in the context of hunting and food-sharing rules and decision-making arrangements.) Here the term "institution" is used to refer to all these arrangements collectively. The practice of territories is only one aspect of the common property institution. In Wemindji, territories do not represent the privatization of the resource; they serve collective interests.

3. The work of Morantz (1983) shows that "trading captains" emerged with the evolution of the fur trade in eastern James Bay. It is not clear whether these captains led the beaver harvest as well. Perhaps a leadership structure developed in parallel with the need to husband scarce and valuable

resources; that is, intensification of the harvest led to the emergence of more tightly organized common property institutions.

4. All of the quotations used in this paper are hunters' words put in proper written English, as requested by them. They have been checked over by the hunters and revised as necessary.

5. The interpretation of family hunting territories as private property is in error. Beaver and goose bosses clearly have stewardship duties, not *private* rights. Demsetz (1967) and others who have used Algonquian hunting territories to illustrate the emergence of private property as an economic institution have erred in their selection: hunting bosses are part of the common property resource institution, not of a new private property institution (see also Tanner in this volume).

6. The model is relevant to the "tappers and trappers" argument of Murphy and Steward (1956): Trade in wild products results in the breakdown of the culture of unstratified native societies, to be replaced by "individual families having delineated rights to marketable resources." With commercialization, communally held common property resources may be replaced with family-controlled common property resources. It is questionable, however, that this represents privatization (perhaps so with the tappers, but less likely so with the trappers). It is questionable also if such a transformation of the common property system should be called "cultural breakdown."

7. Morantz (1985:141) observes: There was enormous pressure on the Cree in various parts of James Bay to abandon their usual conservationist practices and kill whatever animals they found. This was happening at a time when there was a "boom" in prices, the period of the early 1920s . . . Anderson, the Hudson's Bay Company district manager, described this period as a "free for all" and for him it explained why the beaver were nearly exterminated.

   Although southern James Bay was most affected, the northern region saw its share of white trappers too beginning in 1929. Then two Swedes were said to have been trapping around Fort George, using poison . . . In 1931, an Oblate priest at Moose Factory, Father Emile Saindon, complained to the Indian Affairs superintendent that planes were bringing in white trappers to Eastmain. They were outfitted by a merchant and expected to produce at least $2,000 in furs . . . These trappers were being dropped off about 200 miles inland from Eastmain.

Morantz (personal communication) points out that the Fort George area saw fewer white trappers than the areas further south and suggests a "boomerang effect" created by open access further south.

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