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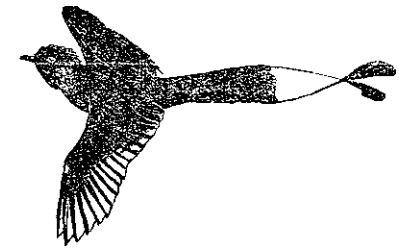

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ON THE DIVERSIFICATION OF COMMON PROPERTY RESOURCE USE BY THE INDIAN SOCIETY

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1. INTRODUCTION

All renewable resources of the earth are in one sense common property resources, since no individual can live let alone absolutely control, any given resource in perpetuity. Nevertheless, the degree of commonality of access to any resource varies considerably, from private resources such as farmland held by one family or lineage and communal resources like village grazing lands controlled by a specific human community through state controlled resources such as inshore fisheries to open access resources such as high ocean fisheries. When a single individual has exclusive access to any given resource, the possibility exists that he would harvest it as to maximise the total harvest integrated over a long time period. Of course, he may over or under exploit it, because he does not have the requisite information to underexploit it because the costs of resource utilization are high relative to benefits beyond a low level of resource use, or over exploit it because he discounts the future (Das Gupta, 1983). However, the third possibility, that of overexploitation, becomes stronger as several individuals come to share access to a resource, as all will tend to discount the future very strongly in absence of any agreement as to the quantum of resource to be used by any one of them. The central issue of common property resource management is therefore that of how agreement may be reached amongst the different parties as to the share of each individual as well as the total harvest so that the resource is not decimated through overexploitation (Berkes, 1986).

This problem of common property resource management is analogous to that of achieving a co-operative solution in a prisoner's dilemma

game, i.e., when all benefit when all co-operate and end up as suckers. Since our scenario relates to renewable resources that are being repeatedly harvested, the iterated version of the prisoner's dilemma game is particularly relevant (Axelrod, 1984). Joshi (unpublished manuscript) has formally extended this to a many person game, while Berkes and Kence (unpublished manuscript) have informally explored the possible consequences when many persons interact over extended periods in sharing a renewable resource. These models suggest that assumption of a co-operative solution entailing restraints on resource use so that the harvests are maximised when considered from a long term perspective is more likely to occur under the follwing circumstances:

(i) When the number of parties sharing access is small

(ii) When the parties sharing access repeatedly interact with each other over a long period

(iii) When the different parties sharing acess share the harvest in an equitable fahsion, and

(iv) When the different parties sharing access are linked to each other by bonds of kinship or reciprocation in contexts additional to the resource use.

2. INDIAN CASTE SOCIETY

It is therefore of much interest to note that the traditional organization of the Indian society in relation to resource use was such that all these four conditions tended to be fulfilled. The society was an agglomeration of a very large number, some 40000 or so, of endogamous groups (Gadgil and Malhotra, 1983). Each such endogamous group had a restricted geographical distribution, generally over an

ecologically homogeneous region. Within this range each group tended to follow a well hereditarily defined pattern of subsistence. Thus in the Uttara Kannada district on the west coast of India there are three endogamous groups of fishermen, one distributed along and fishing in the open sea, a second distributed along and fishing in the estuaries, and a third distributed along and fishing in the rivers. This cluster of fishing groups is ranked rather low, amongst the fourth of the Varnas (literally colour) in which the entire community is theoretically divided. Similarly in the same district there are two priestly castes. Haviks, who are primarily horticulturists and Saraswats, who are traders. Both these castes are ranked amongst the highest or Brahmin Varna. There has been a plethora of terms for the different groupings in this society. We will follow Iravati Karve (1961) in restricting the term caste to each endogamous group (in place of the term sub-caste sometimes used); caste cluster to a collection of caste with similar subsistence patterns such as the cluster of fishermen castes mentioned above, and Varna to the five major ranks in the society (in place of the term caste sometimes used for caste-clusters or Varnas) (Ghurye, 1932, Marriott, 1960).

Small villages were often composed of single castes in the more remote, thinly populated hill or desert tracts. Everywhere else the villages included populations of several castes. Both the single caste as well as multi-caste villages were visited by itinerant traders and artisans from neighbouring villages or towns, as well as nomadic artisans, traders, entertainers and so on. The different sedentary and nomadic caste groups interacting with each other were linked together in a web of mutual obligations, the so-called jajmani system. In this

system members of a particular household, for instance of an artisan caste, be it a sedentary group such as carpenter or nomadic such as coppersmith provided services to a particular household, of say, a cultivator caste year after year. Furthermore, the right to serve a particular household was passed on from generation to generation, thus largely eliminating possibilities of competition within each caste group. On top of this the patterns of subsistence of different caste groups were so organized, as to reduce intercaste competition as well. This did not eliminate exploitative relationships, of course, with members of lower castes providing services often far in excess of returns from the higher castes and with priestly and warrior castes usurping the surplus generated by the rest of the society in one guise or the other (Dumont, 1980, Srinivas, 1967).

In common with many agricultural societies, such as those of pre-industrial Europe, each village community controlled access to a village commons used to the fuel, grazing, leaf-manure and small timber needs of the community (Cox, 1985). This was a system in which a small number of individuals repeatedly interacting with each other and tied together with bonds of kinship (within castes) or other reciprocal obligations (within and across castes) had relatively equitable access to the resources of the village commons. As noted above, this is a situation favourable to co-operative resources use, and indeed all evidence points to restrained sustainable use of these resources by the community (Gadgil, 1985).

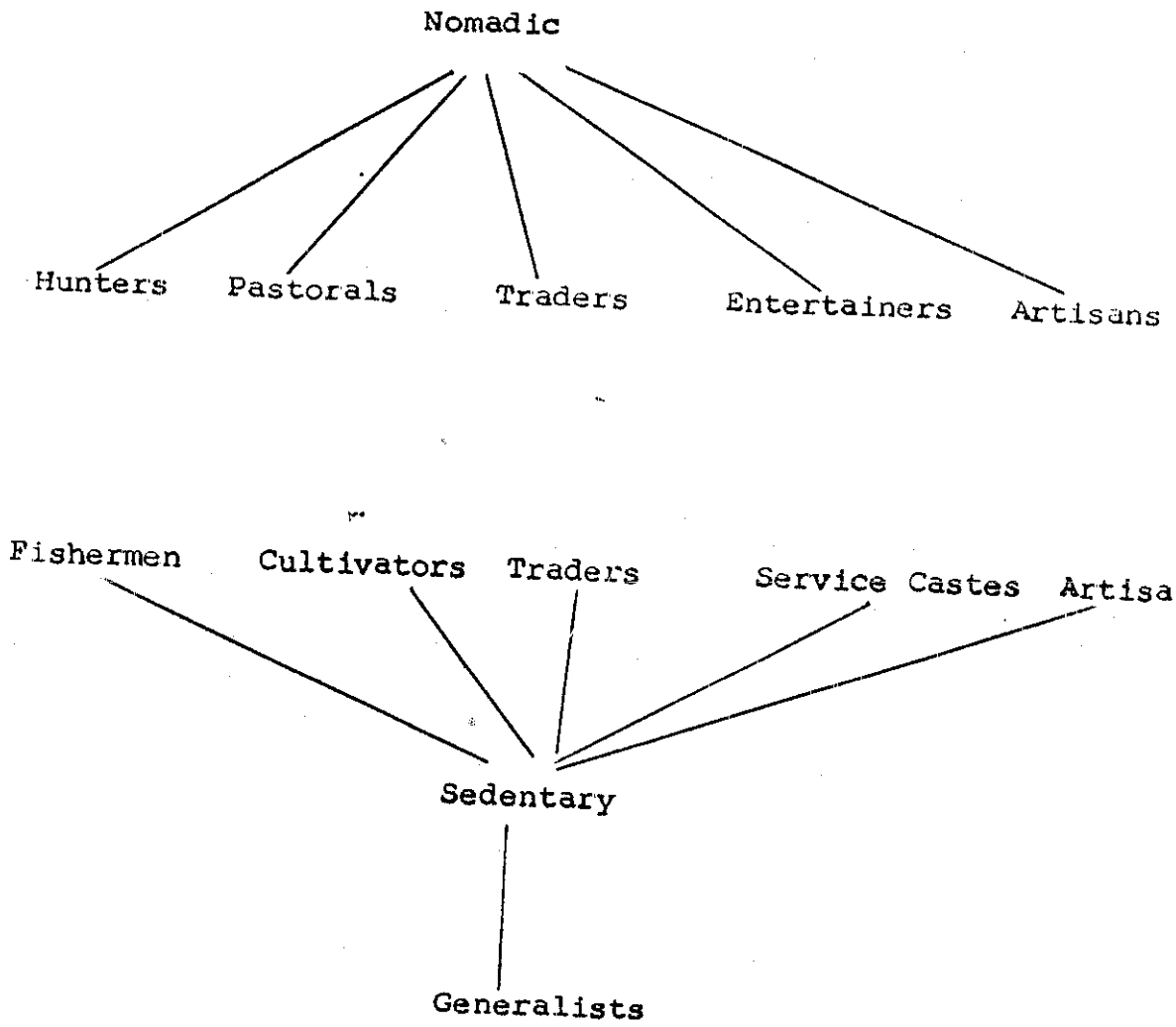
3. NICHE DIVERSIFICATION

The most noteworthy features of the Indian society, however, was the rather narrow definition of the subsistence pattern of each caste, and the fine division of resource use by the different caste groups living in the same region. The multitudes of different castes may be thought of as belonging to eleven major "ecological" guilds, with distinctive patterns of use of natural as well as human resources (Table 1). More interestingly, the different sympatric castes, i.e., castes with overlapping geographical distributions, belonging to each guild exhibited further, finer, diversification of resource use minimizing niche overlap (Pianka, 1983; Giller, 1984).

We have earlier reported in detail one instance of such niche diversification amongst three nomadic castes of semi-arid tracts of Maharashtra, one of them being specialist hunters, the other two combining hunting with other occupations such as soothsaying and trade. It turnd out that these three sympatric castes had so specialised their hunting techniques that one group, the Phasepardhis, snared deer, antelope and game birds, another, the Vaidus, trapped small carnivorous mammals and the third, the Nandivallas, hunted monitor lizards, wild pigs and porcupine with the help of dogs (Malhotra, Khomne and Gadgil, 1983; Gadgil and Malhotra, 1983). Here, I would like to add three more instances from amongst the sedentary castes of Uttara Kannada district in the state of Karnataka, a coastal hilly district lying between lat $13^{o}\ 55'$ to $15^{o}\ 31'$ N and long $74^{o}\ 9'$ to $75^{o}\ 10'$ E.

TABLE 1

The eleven major "ecological" guilds making up the traditional Indian caste society



The Kumta and Ankola taluks of this district harbour three specialist castes of fishermen; Kharvis, Hariakantras and Ambigas; a fourth generalist caste, Halakkis also indulge extensively in fishing. The three specialist fishing castes fish in three distinct ecological zones: Kharvis in open sea, Harikantras in the estuaries and Ambigas in rivers upstream of the estuaries. The Halakkis overlap with Harikantras and Ambigas in fishing in the rivers and estuaries; however they employ distinctive fishing techniques. Thus Harikantras and Ambiga men fish with the help of nets and hooks; their women market the fish. The Halakki men set primitive fish traps on river banks with help of sticks and stones and their women collect molluscs from the river bed. The Halakkis fish only for domestic consumption, not for the market (Figure 1).

In the same region, namely the coastal Kumta and Ankola taluks of Uttara Kannada district eight different castes manufacture mats and baskets from six different kinds of monocotyledonous plants (Figure 2). One of the artisan castes, Holeyas, depends heavily for its subsistrence on mat and basket weaving, although they also traditionally skinned cattle and buffalo carcasses and tanned the hides. The Holeyas had a monopoly over species of a palm Corypha; they also extensively use bamboos and cane, the latter two being material most eminently suited to basket and mat weaving. Another artisan caste, Chamagars, are traditional leather workers; they also make mats and baskets out of genus Phoenix over which they near complete monopoly, except for its occasional use by Halakkis. The Halakkis are generalists, being cultivators of paddy and vegetables, skilled house builders, as well as hunting and fishing extensively for self

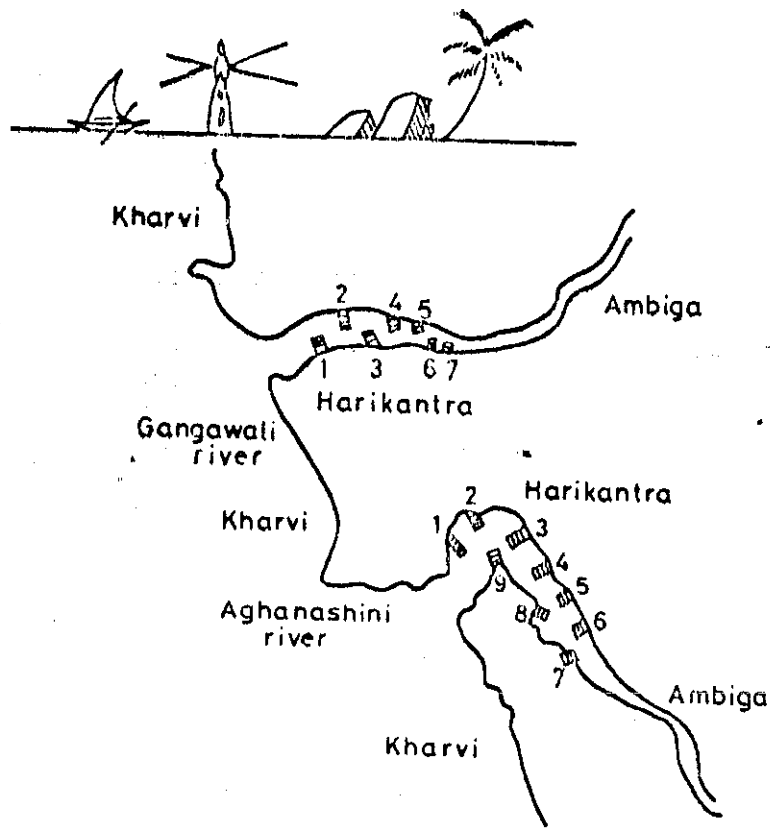
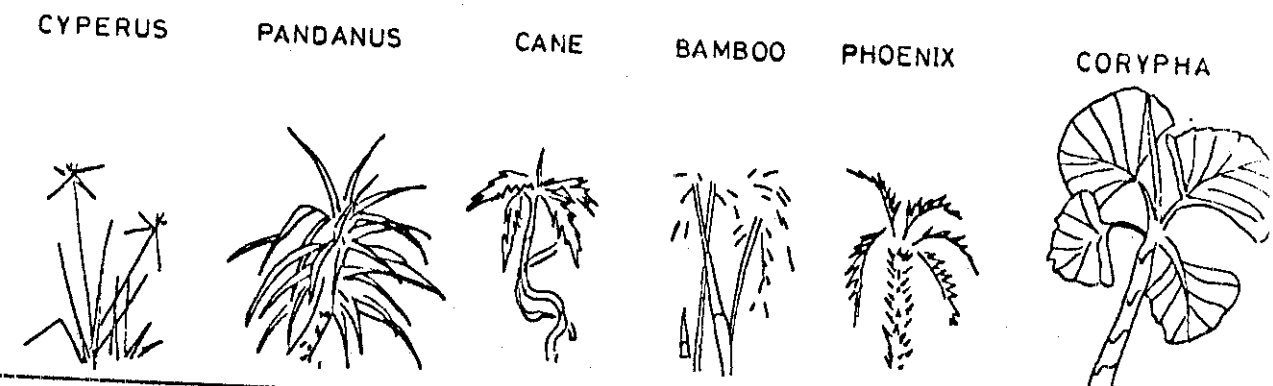


Fig.1 The three fishing communities of Uttara Kannada district segregate by concentrating fishing in different habitats.



	CYPERUS	PANDANUS	CANE	BAMBOO	PHOENIX	CORYPHA
HOLEYA			+	+		+
CHAMAGAR		+			+	
HALAKKI		+	+	+	+	
MARATHI			+			
PATGAR	+					
HARIKANTRA			+	+		
AMBIGA			+	+		
AGER			+	+		

Fig.2 Use of different plant species for mat/basket weaving by eight different communities of Uttara Kannada district.

consumption. The Halakkis of Ankola undertake mat and basket weaving, rather incidentally from Phoenix, Pandanus, cane and bamboo. But the Halakki women of Kumta specialize in weaving mats out of Pandanus, a monocotyledonous shrub growing by the side of water. Notably enough, in Kumta area Halakkis have a monopoly over Pandanus. A cultivator caste, Marathis opportunistically use cane for basket weaving wherever their settlements are close to forest areas. Another cultivator caste, Patgars, specialize in cultivation of brackish water paddy in estuarine areas. They also have monopoly on weaving mats out of Cyperus reeds on the river margin. Two fishing castes, Harikantras and Ambigas, and a cultivator caste, Agers, weave baskets out of bamboo and cane, almost entirely for self consumption.

Our third example of resource use diversification pertains to two specialist cultivator castes, Naiks and Haviks of Sirsi taluka, at an elevation of 600m in the hills of Uttara Kannada district (Figure 3). Folk history suggests that Naiks were the earlier inhabitants of this region, while Haviks migrated later, initially to serve as priests. The Haviks have specialized in maintenance of multi-storeyed orchards of arecanut, pepper, banana and cardamom, although they also continue to serve as priests. The narrower valleys shaded on the Western side thorughout the year are optimal for the development of such orchards, and today Haviks largely occupy such narrow valleys. The broader valleys tend to be occupied by Naiks where they cultivate paddy. Although today the Haviks also cultivate some paddy, this was taboo for them earlier. Similarly although Naiks do raise some orchards today, that has not been part of their tradition. Furthermore, the two groups put the forested hills abutting their cultivation to rather

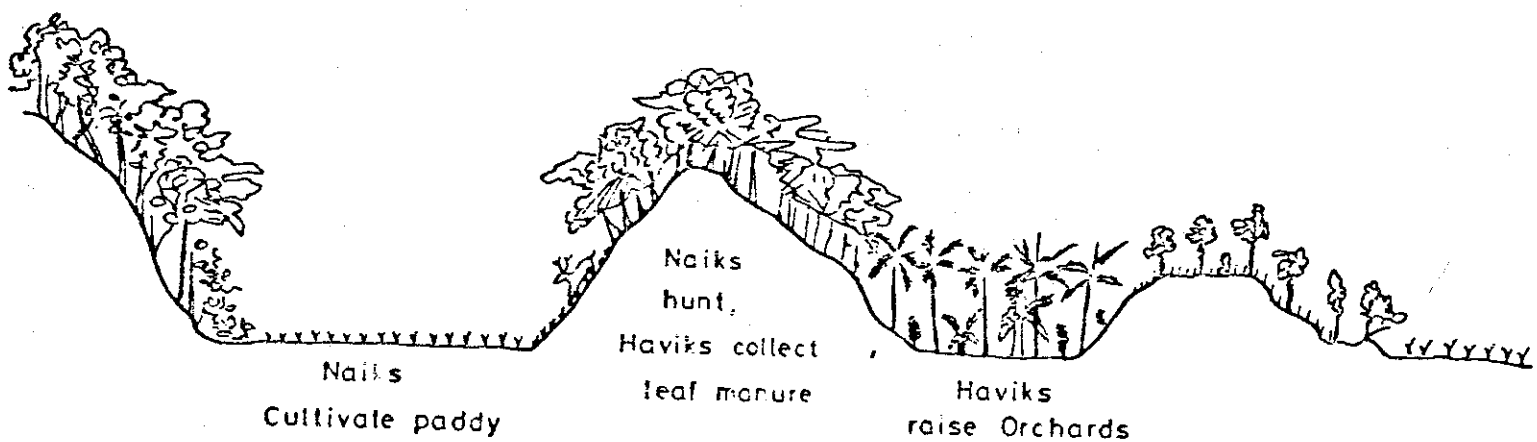


Fig.3 The two specialist cultivator communities of Uttara Kannada district, Haviks and Naiks segregate by differential use of broad and narrow valleys and hills.

different uses. Its wildlife is hunted by Naiks, but not by Haviks who eat no meat. The Haviks use these hill forests extensively for supply of leaf manure on which their orchards are heavily dependent. While Naiks also use some leaf manure for their paddy fields, their damands are much less.

4. PRUDENT RESOURCE USE

We believe that such diversification of resource use by different caste groups living in the same region was indeed widespread throughout India. It meant that the more specialized plant and animal resources of a given locality tended to be the monopoly of a particular group of a sedentary or a nomadic caste. Other resources in general demand, such as grass for grazing by cattle, tended to be the monopoly of the local, often multi-caste, village community. Together, this arrangement led to small numbers of people with long duration of interactions and with bonds of kinship or reciprocity controlling and sharing access to many, if not all of the common property resources. This was a situation that is expected to promote prudent resource use, and indeed we have evidence of many practices of restrained resource use in the Indian society, number of which persist to this day albeit in a very much attenuated form (Gadgil, 1985a, b). Such restraints include:

(a). Quantitative quotas: In the communally managed village forest of Muroor-Kallabbe in Kumta taluk, people still observe quotas on quantity of wood extracted by each family in a year from that forest area, although they overexploit other areas outside.

(b). Ciesed seasons: In many South Indian villages, people do not

hunt birds such as storks, herons and pelicans during the breeding season at heronaries, although they may be hunted at other times of the year. The local people are concious of the value of guano as manure.

(c). Protected life history stages: Phasepardhis, a hunter caste of semi-arid tract of Maharashtra, earlier had a monopoly on antelope and deer of their region. They traditionally set free any fawn or pregnant doe caught in their snares.

(d). Protection to individual species: Species of Ficus, now recognised as keystone mutualists by ecologists, were protected and almost never cut down over most of India, as was Prosopis cineraria a key economic resource in the desert regions.

(e). Protection to entire communities: Complete protection was accorded to patches of forests or ponds or stretches of rivers. Sacred groves are even now important reservoirs of genetic resources in many parts of India (Gadgil and Vartak, 1976).

5. TAKEOVER BY THE STATE

This organization of resource use based on control of resources by small communities was largely destroyed during the British rule. The British took the position that there were only two valid forms of resource control, private or state, and that there was no legitiamcy for any communal control of resources. This enabled them to establish direct control over much of the vast capital of natural resources of the country; whose exploitation was, after all., the prime motivation for their conquering the land in the first place. There was

considerable resistance to such usurpation of communally controlled resource by the state, so that not all of them could be put exclusively to the use of colonial power. The solution adapted by the British was to agree to a certain level of continuing use of the erstwhile communal resources by the local community, but only as a privilege granted by the state. Thus, in the Uttara Kannada district some of the communal forests were converted to state owned limited access property, the reserved forests, while others were permitted to be retained for communal use, as so-called minor forests. These minor forests now became state property open to essentially unregulated use by all. The local community had no right to control its use by members, either of their own community, or by others outside their own community. This form of state property then essentially became open access property. As open access property it was often rapidly overused and destroyed, a process hastened by the increasing demand on resources from both the rural and urban industrial sector and the introduction of monetary economy leading to a breakdown of reciprocal relationships amongst the different caste groups in a village, as well as within each caste group (Gadgil and Malhotra, 1985; Gadgil, 1986; Guha, 1985a, b).

The processes launched by the British rule have continued on independence, with the predominantly urban-industrial elite assuming the exploitative role of the erstwhile colonial power. These processes have by now destroyed most practices of communal management of resources with many of the attendant restraints on resource use. Almost completely gone are the communally enforced quantitative quotas on resource harvest. A few sacred groves and sacred ponds still

persist in the more remote hill tracts. Protection to individual species such as Ficus religiosa and Prosopis cineraria is however still fairly widespread, though even this is vanishing in regions most subject to commercialization. the resources are most thoroughly destroyed in case of property created as state owned, but open access property. The resources maintained as state owned, but limited access property, for instance, the reserved forests are in somewhat better shape, although these too have been seriously eroded (Gadgil, Prasad, Ali, 1983).

6. THE CHALLENGE

It is this situation that has led to considerable rethinking on the whole issue of patterns of resource control and use in recent years. There is some realization that state control of property as established by British, and continued after independence has had many undesirable consequences, and that it is now necessary to consider the possibilities of reestablishing communal control and management of some of the country's resource capital (Fernandes and Kulkarni, 1983; Agarwal,et al. 1982; 1984). This however is not an easy task, for we no longer have the well organised small communities that once managed communal resource in a prudent fashion. The challenge, of course, is to recreate such traditions of prudence in the modern context, a difficult, but a most worthwhile task (Prasad et al., 1985; Gadgil, 1986).

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