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Challenging 'Community' Definitions In Sustainable Natural Resource Management:
The Case Of Wild Mushroom Harvesting In The USA

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EXECUTIVE SUMMARY

As approaches espousing the importance of local participation in natural resource decision-making have gained political ascendancy in recent years, local communities are being seen as the most appropriate managers of local natural resources. However, this overlooks the important role played by external, mobile groups who also have a stake in managing and harvesting certain natural resources. Thus, when influence and control over natural resources shift toward local communities, how local community is defined determines who will share in this power and who will benefit from natural resource management and allocation decisions.

In this paper, we weave together non-equilibrium management theories emerging from Sahelian rangeland ecology and North American fisheries with examples drawn from wild mushroom harvesting and management in the Pacific Northwest. Mobility strategies play a central role in these three resource arenas, all of which share non-equilibrium system characteristics of high variability and unpredictability in productivity. The case study of wild mushroom harvesting shows how defining local community by year-round residential proximity to forests may be socially, ecologically, and ethically unsound:

- Narrowly conceptualised fixed-in-place communities may not be the most useful socio-political units for developing the economic potential of forest resources where mobility may be necessary for economic viability.
- The notion that community residents have greater incentives to practise resource stewardship than 'outsiders' does not hold true for situations where 'outsiders' are using transhumance strategies, visiting the same forests, and more importantly, working with the same patches throughout a season, and often from year to year.
- Failure to see transhumants as an integral part of communities-of-place denies the validity of the attachments that mobile harvesters develop to the forests in which they work, and also diminishes the importance of the social connections they form with each other and residents of the places in which they work.

In conclusion, we offer a few suggestions as to how communities and policy makers alike can create an environment conducive to the sustainable and profitable harvesting of this type of natural resource. Suggestions range from improvements at a local level, to the need to re-examine concepts and decision-making processes at a policy and planning level. These include ensuring resource tenure security for both 'insiders' and 'outsiders'; creating fora to allow for the participation of mobile harvesters in developing more appropriate policies; and ensuring that definitions of 'community' do not exclude others who depend upon and manage certain natural resources. These suggestions are applicable not just to the specific case of mushroom harvesting in the USA, but also have resonance in many areas, in both the North and South, where natural resource management is being devolved to the 'community'.

CHALLENGING 'COMMUNITY' DEFINITIONS IN SUSTAINABLE NATURAL RESOURCE MANAGEMENT:

THE CASE OF WILD MUSHROOM HARVESTING IN THE USA

Rebecca McLain & Eric Jones

Introduction

As approaches espousing the importance of local participation in natural resource decision-making (eg, ecosystem management, landscape management, and sustainable development) have gained political ascendancy in recent years, local communities are being seen as the most appropriate managers of local natural resources. However, this overlooks the important role played by external, mobile groups who also have a stake in managing and harvesting certain natural resources.

To illustrate the dangers of relying on residential proximity to define natural resource management and access boundaries, we weave together non-equilibrium management theories emerging from Sahelian rangeland ecology and North American fisheries with examples drawn from wild mushroom harvesting and management in the Pacific Northwest. Mobility strategies play a central role in these three resource arenas, all of which share non-equilibrium system characteristics of high variability and unpredictability in productivity. The wild mushroom examples used to support our argument are drawn from exploratory studies conducted by the authors in the Olympic Peninsula, the Oregon Coast Range, and the Washington and Oregon Cascade Range during 1995. Our analysis also draws on Jones' experience as a commercial wild mushroom picker and buyer during the past decade.

The Problematic Nature of the Concept of Community

When influence and control over natural resources shift toward local communities, how local community is defined determines who will share in this power and who will benefit from resource management and resource allocation decisions. However, defining the bounds of local communities and thus, by implication, who constitute insiders and outsiders, remains problematic.

Terms such as 'local community', 'community of place' or 'fixed-in-place communities' are often used to imply that a community is a discrete social entity whose members reside within a bounded geographic space and have land management motivations and interests

that are distinct from people residing outside that space. However, as Painter (1993) points out for village-based, desert rangeland management efforts in the African Sahel, Sahelian communities may be more usefully thought of in terms of shared and overlapping action-spaces, where sites of productive action are multiple and often spatially discrete. Communities conceptualised as 'action spaces' can be thought of as fuzzy networks where linkages occur between people and resources within a bounded space while outside linkages may be a fundamental part of the cultural production of the bounded community. However, while many social scientists do examine these outside linkages, or at least situate the study of specific places within a larger context, they often do not perceive the outside linkages as part of the local community. Thus, people who visit, or live in a bounded community of place part-time (eg. seasonal apple pickers, pastoralists, gypsies) and who often develop a deep love of place, continue to be defined as outsiders rather than insiders.

When thinking of implementing community-based forestry, or other natural resource management strategies, we thus need to ask the following questions. In drawing the bounds of community on the basis of residential proximity (or traditional use of forest resources), whose access to that forest's resources is diminished? What are the consequences for forest environments, including the people who operate within in them, in drawing the boundaries in this particular way?

Efforts to implement community-based forestry in Africa and Asia suggest that equating local community and community of place with residential proximity to natural resources can undermine well-meant efforts to support sustainable resource management (Painter 1993; Sivaramakrishnan 1996; Turner n.d.).

The need to think beyond residential proximity when defining communities for the purpose of devolving resource management authorities has figured prominently in community forest management debates in West Africa since the early 1990s, perhaps because non-resident groups sometimes have strong use claims and may wield considerable power (GDRN5; McLain, 1993). For example, efforts to re-invigorate traditional village forest management institutions in Mali have deliberately sought to modify those institutions in ways that provide non-resident pastoralists and woodcutters with a voice in forest management decisions (Toure et al, 1993). In contrast to the debates in Africa, little of the literature on community or joint forest management in India deals with the issue of where mobile user groups fit in joint forest management institutions. Membership is frequently restricted to users living near the forest (Sarin, 1996). Pastoralist nomads in western and northern India in particular, appear to have little, if any, representation in existing joint forest management committees (Poffenberger et al, 1996; Sarin, 1996). Sarin's (1996) overview of joint forest management institutions in India indicates that some of the forest destruction caused by so-called 'outsiders' may be due to their perceptions that their rights of access have been arbitrarily denied.

As community-based forestry efforts gain strength in the United States, a trend toward equating community of place with residential proximity has begun to emerge. A variety of arguments has been made for increasing local community influence or control over national forests. One set of politically vocal actors, county supremacists, argues that local communities have the right to a greater voice than others on the grounds that traditional customs and cultures legally take precedence over new resource use configurations (Erm,

1994). Other supporters of community-based resource management approaches maintain that forest community members deserve an important voice in resource management decisions because they often have a strong dedication to the well-being of their local ecology (often described as love of place) as well as intimate knowledge of its socio-ecological particularities (Stankey and Shindler, 1996; Pinkerton, 1989). Still others argue that because local people must live with the negative consequences of resource management decisions, they have economic incentives to be good stewards (Kemmis, 1990; Bray, 1991; Western and Wright, 1994). As mainstream forestry begins to acknowledge the potential merits of some of these arguments, forest proximate communities are beginning to play more prominent roles in national forest management (Shindler et al, 1995). These new roles are reflected in both top-down and bottom-up efforts to provide local forest communities a greater voice in how national forests are managed - eg, public-private partnerships, bioregional councils, Adaptive Management Areas, and watershed management councils.

We believe that it is important for community-based forestry supporters to begin with a broader definition of community. This definition needs to leave space for the needs of non-resident stakeholders whose livelihoods are significantly affected by decisions about forest use in that place. Though we recognise that communities-of-place have valuable roles to play in managing the forests around them, we wish to show that people who do not reside permanently in those communities may, nonetheless, be vital components of those communities and should not be excluded from forest decision-making processes.

Managing Resources Characterised by Spatial and Temporal Variability

Assumptions that 'local' communities are the most appropriate sociopolitical units for managing or allocating resources may be economically and ecologically counterproductive in non-equilibrium resource systems (Turner, n.d.; Behnke and Scoones, 1992). In non-equilibrium resource systems, the spatial and temporal distribution of resource productivity varies unpredictably within recognisable limits (Wilson et al 1990; Behnke and Scoones 1992). To cope with the uncertainty of resource productivity in non-equilibrium systems, many historic and contemporary human groups ranging from hunter-gatherers, pastoralists, fishers, and agriculturalists adopt(ed) transhumance[1] strategies. Transhumance strategies rely on a combination of physical mobility, diversity of economic strategies, reciprocity in access to resources, and flexible tenure institutions to ensure that group members have access to key resources in sufficient quantities throughout each year and from year to year. Ensuring access to key fallback zones in areas of consistently high productivity is particularly crucial for periods when areas on the margins fail to produce sufficient resources (Behnke and Scoones, 1992). Recent studies of range conditions and transhumant pastoralist systems in Zimbabwe and the West African Sahel indicate that the movement toward community-based management, in which sedentary agricultural villages serve as the model for 'community' and where land uses are increasingly 'fixed-in-place' by zoning, may

1. The seasonal movement of one’s home to resource-abundant areas usually forming a regular pattern over years

accelerate rangeland degradation, leading to social and economic hardship for mobile groups and less powerful members of sedentary groups (Turner, n.d.; Behnke and Scoones, 1992).

Mobility and Communities of Place: the Case of Wild Mushrooms

Many commercially harvested wild mushrooms in the Pacific Northwest appear to exhibit characteristics of non-equilibrium resources. Thus it is reasonable to posit that mobile strategies may be a critical aspect of commercial viability for these products. Unpredictability over time and space is an important aspect of the mystique that has historically surrounded wild mushroom gathering in European and Euro-American cultures. Extreme temporal and spatial variability in species productivity currently hinders attempts by ecologists and mycologists in the Pacific Northwest to develop reliable inventory techniques for wild mushrooms and to compare the effects of different harvesting techniques on patch productivity (USMAB, 1996; PNW Matsutake Team, 1995). Variability in biological productivity is matched by variability in prices for fresh mushrooms over a season and across seasons (PNW Matsutake Team, 1995).

The Emergence of the Wild Mushroom Industry in the Pacific Northwest

In the last 15 years, a rapidly expanding commercial wild mushroom industry[2] (which overlaps a longer tradition of non-commercial harvesting) has become an economic buffer for many individuals in rural and urban communities in the Pacific Northwest. As wild mushrooms in particular, and non-timber forest products (NTFPs)[3] in general, become increasingly visible in Pacific Northwest forest economies, a wide range of stakeholders, including harvesters, buyers, community development organisations, environmental groups, public land management agencies, private landholders, and amateur and professional scientists, are attempting to understand the biological, social, and economic implications of further commercial expansion of these products.

Since the mid-1980s wild mushrooms have been consistently the focus of strident and sustained public debate over ecological impacts of commercial extraction levels, access to mushroom habitat, increasing regulatory efforts and economic and labour conflicts (frequently portrayed in the media as ethnic conflicts). During that time, the temperate forests of the Pacific Northwest have become an important source for a variety of wild mushrooms marketed globally, such as yellow chanterelle (*Cantharellus formosus*), morels

2. Exploratory studies indicated that wild mushroom harvesting in Washington, Oregon, and Idaho is a multi-million dollar industry (Schlosser et al 1991; Schlosser and Blatner 1995).

3. Non-timber forest product is a catch-all term that can refer to a variety of diverse forest resources such as, mushrooms, berries, leaves, barks, and boughs. Synonyms include, non-wood forest products, special forest products, minor forest products, and secondary forest products.

edulis), hedgehog (*Hydnum repandum*), lobster (*Hypomyces lactifluorum*), and cauliflower (*Morchella genera*), matsutake (*Tricholoma magnivelare*), porcini or cepes (*Boletus* (*Sparassis crispa*) to name a few. In Oregon, Washington, and Northern California, some rural communities negatively affected by timber production declines are exploring avenues for capturing a larger share of the economic value associated with non-timber forest products, including wild mushrooms. Some of these are community-based initiatives. Others, such as the Gifford Pinchot National Forest's special forest products programme, are federally initiated attempts to encourage economic diversification in forest dependent communities. Whether top-down or bottom-up initiatives, attention needs to be given to where mobile harvesters fit into overall forest management.

The population of commercial wild mushroom harvesters is in the thousands, if not tens of thousands. The commercial wild mushroom harvester population is ethnically diverse, and includes Euroamericans, a variety of south-east Asian groups (mostly permanent immigrants from Cambodia and Laos), members of numerous Native American tribes, and both temporary and permanent immigrants from Mexico and Central America. Both men and women are significant participants in the commercial harvest, and harvesters range in age from schoolchildren to people in their 70s and 80s. The degree to which commercial harvesters are economically dependent on wild mushrooming varies greatly, with some obtaining the majority of their household income from the activity. Most harvesters making a living from wild mushrooms generally use a car or small truck to move around, and many cover tens of thousands of miles in a year.

Mobile harvesting/buying strategies take multiple forms in Pacific Northwest mushroom regions. Hansis (1995) identified three types of mobile harvesters present in the Crescent Lake, Oregon area in late September 1995: circuit pickers (harvesters who travel to multiple picking sites over the course of a season, often without returning to their place of residence for many weeks); 'commuter' pickers (harvesters who travel to sites for one to three day periods - often at weekends - and return home for the rest of the week); and 'vacation' pickers (harvesters who travel to one picking site, where they remain for several weeks). Coinciding with increasing temperatures and moisture that cause mushrooms to fruit, harvesters generally move north and eastward in the spring and summer, and south and westward to the coast in autumn and winter. They also move up the mountain slopes in the spring and summer and down the slopes in autumn and winter.[4]

Although a large variety and quantity of commercial wild mushrooms may appear within the boundaries of a given 'local community', the complex interactions of a host of factors, such as rainfall, frosts, shifts in global demand, and regulatory changes, cause economic values to vary unpredictably throughout a season and from year to year.

These factors suggest that communities should be cautious in developing economies based on the commercialisation of resources with a high degree of spatial and temporal variability (Box 1). This is not to say that communities should not exploit new economic possibilities, but, as the example shows in Box 2, they should recognise that mobility strategies may be a

4. However, these are only general patterns as the factors that influence particular species to fruit are highly variable and complex, making the predictability of the harvest uncertain from year to year and place to place.

crucial aspect in creating stable economic opportunities around certain special forest products, such as wild mushrooms.

Box 1. Variability in Mushroom Availability

Although small groups of mobile harvesters have harvested matsutake mushrooms commercially in the Gifford Pinchot National Forest, Washington since at least the early 1980s, local residents first became aware of the presence of commercial quantities of matsutake in the surrounding forest when a large influx of commercial pickers entered the area in 1991. This influx appears to have been spurred by shortages in other normally productive matsutake areas to the north and south, coupled with a particularly productive season in the Gifford Pinchot forest. During the following years the harvest remained economically viable, attracting residents, who had previously not been engaged in commercial mushroom harvesting, into the mushroom economy.

In the summer of 1995, discussions on how to support a community-based special forest products programme (including matsutake) were initiated as part of the Cispus Adaptive Management Area planning process. The initial optimism about establishing a community-based wild mushroom management programme, however, was quickly dispelled that autumn when an early warm cycle brought a high rate of worm infestations, significantly decreasing the economic value of locally harvested matsutake. By the first week in October, the high point of the season in previous years, all but a few buyers had packed up and moved to areas with more commercial quality mushrooms. Residents who had anticipated making some money from the harvest were unable to. Furthermore, the local economy did not benefit from the influx of mobile harvesters, many of whom shifted their picking activities to Crescent Lake, where the matsutake mushrooms were more abundant.

The second example (Box 2) further shows the interdependence between mobile and resident harvesters and suggests that deliberate or inadvertent shutting out of mobile harvesters can potentially undermine income opportunities for resident harvesters as well.

Mobile Harvesters as Resource Stewards

A key element of many definitions of sustainable resource management is the notion of using resources in ways that maintain ecological processes and functions, leaving options open for future generations. Sustainability is often linked to the concept of stewardship, that is, the notion of leaving something in as good or better condition than found or put into one's care, and in managing something for more than personal gain. Some community-based resource management efforts attempt to foster stewardship behaviour through the development of formal arrangements such as individual and community stewardship contracts, end results contracts, land management services contracts, forest trusts, and conservation easements. As formal stewardship arrangements become increasingly common, we are concerned about assertions implying resource users who do not live in an area are less likely than 'local residents' to engage in stewardship behaviour toward forest resources. Though what constitutes 'stewardship' for wild mushroom harvesting remains ambiguous, our research suggests that many mobile, as well as resident harvesters, are

actively searching for and testing practices aimed at improving and maintaining wild mushroom habitat and specific mushroom patches.

Box 2. Interdependencies between Insiders and Outsiders

During much of the 1980s, the area around Town X on the Olympic Peninsula of Washington experienced relatively high yields of chanterelles and matsutakes, and had become a regular site for transhumant harvesters. Mushroom buying evolved into an important part of the town's economy. However, in recent years, private, state and federal land managers have begun regulating access to wild mushrooms. This is partly a response to concerns from urban based recreational pickers that the commercial harvest was not sustainable, and also an attempt to simplify the timber harvest without the added complications of having to accommodate mushroom pickers. As a result of the increasing complexity of regulations, such as requiring harvesters to get signed permission slips from all land owners where they harvest and then submit these to the local law enforcement offices, many mobile harvesters no longer visit this area. At the same time, buyers have complained that there are insufficient pickers for the available harvest, noting that local harvesters are unable to make up for this shortfall. Interviews with pickers whose harvesting activities are restricted to the immediate area around the town, suggest that by itself, the area does not produce enough commercial wild mushrooms on a regular basis to make wild mushroom harvesting attractive as a dependable income generating activity for many local residents.

Our conversations with harvesters indicate that a trade-off often exists between commercial picking of a variable resource and engaging in informal experimentation aimed at increasing the potential for economic return over the long-term (Box 3).

Harvesters develop a sense of stewardship not only through experimentation within the habitat, but also through social interactions within the commercial mushroom arena. People outside this arena often equate the strong sense of individuality characteristic of many harvesters as meaning there are few settings where socio-cultural norms and ethics would develop regarding harvesting practices. However, there are many settings and processes - buying stations, campsites, encounters in the woods, apprenticeships with 'old-timers' - where mushroom people educate each other about what they think is right and wrong about harvesting techniques and forest ethics.

Although economics are clearly important to mobile harvesters, it is important to recognise that their stewardship practices and ethics are not motivated solely by economics. For every harvester, mobile or resident, there are many factors - values, ethics, economic gain, knowledge, love of place - that potentially shape mushroom harvesting behaviour. The key to sustainable resource management may lie in developing better understandings of the mix of economic and non-economic motivations that underlie efforts by different kinds of harvesters to identify and utilise stewardship practices. It is equally important to understand how these motivations are affected by and work in tandem with resource management policies.

Box 3. Sustainable Management by Mushroom Harvesters

In the Olympic National Forest, a range of stewardship elements and practices are used by mobile (and resident) harvesters. Newly emerging mushrooms are often left to mature into larger mushrooms for which two rationales are given: *"It is usually not economically worthwhile to harvest small mushrooms"*, and there is a relationship between the size (or form in some cases) of the mushroom and the time needed to disperse spores for reproduction. Though harvesters could get more weight (and thus more money) by pulling mushrooms, most chanterelle harvesters insist that cutting does less damage to the mycelium[5]. They claim that chanterelles will sometimes regenerate from a cut stalk. Some harvesters will go as far as to let patches lie fallow under the assumption that this will result in a greater productivity in the future. It isn't uncommon for harvesters to stress the importance of leaving mushrooms for other elements of the ecosystem (eg. wildlife, insects, possible floral interdependencies).

Other experiments at increasing productivity that we have observed include trampling rotten mushrooms into the ground and returning trimmings and other mushroom wastes back to the forest to encourage spore dispersal and nutrient recycling. Some harvesters have tried to inoculate forests with spores.

Source: Love and Jones, 1996

What Makes Someone an Insider?

Within the wild commercial mushroom sector, mobile harvesting and buying activities often take the form of seasonal rounds, characterised by repeated visits to the same regions year after year. Often the time spent by harvesters and buyers in areas distant from their homes results not only in a keen awareness and sense of stewardship of the habitats they work in, but also engenders a sense of identity with the particular forests and towns ('communities-of-place') that they operate from (Box 4). At issue is what makes someone a member of a community of place, ie. what makes someone an insider, rather than an outsider.

Perhaps even more than pickers, mobile mushroom buyers develop knowledge about and connections with the places they stay in along their seasonal and annual circuits. While pickers may not always need formal economic and social links to a community, buyers who stay any length of time in one location inevitably become involved in social negotiations as they seek access to a range of town services (eg. motels or camping facilities, fuel, communication services, etc).

Ecological studies of many important American fisheries suggest that they also exhibit the high variability and unpredictability in productivity characteristic of disequilibrium systems (Wilson et al, 1994). Thus, the existence of strong parallels in social organisations between commercial wild mushroom harvesting and commercial fishing is not surprising.

5. The collective term for the underground, root-like mass of microscopic filaments, which are part of the mushroom where nutrients are absorbed

Box 4. A Sense of Place

In the early 1980s, Jerry, a circuit picker based in the Willamette Valley of Oregon, set up a temporary home on the other side of the Cascade mountain range every year for several months while he harvested boletes and matsutakes. When not picking and cleaning mushrooms, he spent money in local stores and gas stations, washed his laundry at the local laundromat, and made friends with other mushroom pickers and townspeople he encountered. Over time, he even began to feel protective about the forest against new 'outsiders':

> *"It was like they protect their communities against outsiders; I found myself doing that too. You're there for like three months every year. If you have a problem, something breaks down they'll weld it for you ... If you have any problems you know who to talk to."*

Jerry further contends that because he has established a tradition of interaction and love for the place, he is a part of the community and has rights to the mushrooms as much as any resident of the area. Indeed, his subsequent shift into the buying end of the wild mushroom business in the late 1980s illustrates how a buyer's need for connections can potentially lead to the desire for more secure 'insider' status. This is linked closely to the relationships that many buyers have with public land management agencies. As a non-resident working in the eastern Cascades, Jerry believes that his suggestions currently carry less weight with the U.S. Forest Service, the agency that manages most of the land from which his supply of mushrooms comes, than would a resident. One way to acquire recognition as an 'insider' he feels, is to buy property: "*I'd have more leverage as a property owner, I'd get their attention a little bit*."

For example, Johnson and Orbach's (1990) studies of the shrimping industry in the Carolinas lends support to our contention that mobile harvesters can develop attachments to place. Every year, North Carolina shrimpers travel down to South Carolina to shrimp the inshore waters. This migratory pattern is in part economically motivated, but over time the shrimpers have developed a sense of being part of the bay community in which they fish. Their feeling of connection to the South Carolina communities was rendered visible by the support they provided to the harbour town after Hurricane Hugo devastated the area in 1989 (Johnson, pers. comm.). Working in distant places together also allows the shrimpers to strengthen bonds amongst themselves - many assert that their primary motivation for travelling south each year is to have a 'working vacation' with their friends.

Creating Space to Support Mobility Strategies

Though the future directions of public forest management in the Western United States are uncertain, rural communities are attempting to take on more prominent roles. In these struggles, residential proximity to forest resources has been advanced as one of the main criteria for bounding the local. However, our examples from wild mushrooming show how defining local community by residential proximity to forests may be socially, ecologically, and ethically unsound:

- Narrowly conceptualised fixed-in-place communities may not be the most useful socio-political units for developing the economic potential of forest resources where mobility may be necessary for economic viability.
- The notion that community residents have greater incentives to practise resource stewardship than 'outsiders' does not hold true for situations where 'outsiders' are using transhumance strategies, visiting the same forests, and more importantly, working with the same patches throughout a season, and often from year to year.
- Failure to see transhumants as an integral part of communities-of-place denies the validity of the attachments that mobile harvesters develop to the forests in which they work, and also diminishes the importance of the social connections they form with each other and residents of the places in which they work.

We offer a few suggestions as to how communities and policy makers alike can encourage an environment conducive to the sustainable and profitable harvesting of this type of natural resource. Suggestions range from improvements at a local level, to the need to re-examine concepts and decision-making processes at a policy and planning level. The latter are applicable not just to the specific case of mushroom harvesting in the USA, but also have resonance in many areas, in both the North and South, where natural resource management is being devolved to the 'community'.

Fostering a Conducive Environment

At a local level, communities with wild mushroom resources could foster an environment conducive to transhumance harvesting lifestyles. This would enrich the image of mobile harvesting as a lifestyle and acknowledge it as a meaningful part of community identity. For example, mobile harvesters frequently note the lack of basic infrastructure needed for mobile strategies - inexpensive camping facilities, showers, drinking water, garbage disposal sites, public telephones, convenient accessibility to permit issuers, well-marked boundaries, and posting of regulations in spots frequented by harvesters and written in languages understood by harvesting populations. Moreover, mushroom harvesters are often cast in a negative light by government agents, law enforcement personnel, and the media. Fixed-in-place community members could help alter these impediments to mobile harvesters by supporting the development of suitable infrastructure and by promoting their activities at local events.

Ensuring Resource Tenure Security

A critical point to keep in mind in the encouragement of mobile mushroom harvesting strategies is that resource tenure security is equally important to mobile harvesters as it is to sedentary harvesters. Mobile and sedentary harvesters face increasing competition from each other, as well as a progressive, and marked decline in the areas suitable or available for harvesting. Incentives to practise stewardship can be undermined if competition escalates to the point where a harvester decides to clear-cut their patch so that no-one else can harvest there. Increased competition for mushroom patches is due in part to more people perceiving mushroom harvesting as a viable economic opportunity. It is also a consequence of the overall decrease in mushroom habitat availability caused by land

closures, regulatory barriers, and temporary or permanent habitat destruction as a result of residential development and commercial forestry activities. Incentives for conservative picking are eroded when harvesters do not know from one year to the next whether their patches will be off-limits or disrupted by silvicultural operations, such as spraying, roadbuilding, fire control, thinning, or logging.

How can tenure security for mobile harvesters be maintained and promoted within a community-based forestry framework? Tenure security for mobile harvesters picking in national forests is closely tied to regulatory content and enforcement, which in turn are affected by whose voices are heard and listened to in forest policy making processes. Few mobile harvesters participate in the formation of formal rules that they must operate under, even though many rules interfere with their harvesting patterns and conservation strategies. Mushroom harvesters who traditionally picked commercially western US temperate forests now must contend with a variety of regulatory inconsistencies (eg. differences in permit types, permit costs, quantity allotments, species restrictions, and camping restrictions) across their harvesting range. In some national forests harvesters are now routinely asked to provide information about where they are planning to pick, information which is often publicly posted on maps or passed on by land management agency staff to other pickers. This can be perceived by harvesters as an appropriation of their intellectual property, and jeopardises the security of their patches and potentially their economic advantage. Community-based approaches need to recognise how rules, behaviours, and communication protocols that make sense to forest managers or even fixed-in-place harvesters can negatively affect informal mushroom tenure regimes that exist or might otherwise develop among mobile harvesters.

Participation in Decision-making

An important step to take toward developing more appropriate policies, regulations, and attitudes is the creation of suitable forums that make it easy for mobile mushroom harvesters, as individuals and groups, to influence and help create the rules that govern their livelihoods. Such forums would need to take into account where mobile harvesters are, when they are available during the day and the year, the types of atmospheres they would feel comfortable participating in, the languages they speak, the costs of travelling to take part in meetings, and income lost as a result of taking the time to attend meetings. Unless community forums actively help mobile harvesters share forest management powers (Box 5), community-based strategies risk merely reproducing the marginalisation and oppression by 'outsiders' they are currently struggling to eliminate.

Incorporating mobile harvesters into community-based forest management decision-making has several advantages. By bringing in a variety of people with extensive knowledge of adjacent sub-regions and regions, it expands the spatial coverage of the experiential knowledge base from which policies are derived. By ensuring that sufficient harvesters are in an area at critical times, it also allows buyers to maintain their operations in areas that would be marginal if residents constituted the only labour supply.

Box 5. The Jefferson Center Forest Worker Gatherings

The Jefferson Center's (a local NGO based in south-west Oregon) efforts to bring together the disparate groups of non-timber forest product (NTFP) harvesters and other forest workers is a good example of a forum that could provide mobile harvesters a greater voice in forest management decisions. Since 1994 the Jefferson Center has sponsored a series of five dialogue sessions, or 'forest worker gatherings' in Oregon, Washington and Northern California. The gatherings have brought together ethnically and occupationally diverse peoples who work in the regions' forests to talk about their experiences and needs. The meetings are conducted in English, Spanish and Khmer with the help of simultaneous translators. Participants have started to identify ways they can take concrete action as a group to improve their ability to influence forest management decisions. One concrete outcome was the development of a letter addressed to the chief of the US forest service stating that contract forest workers and NTFP harvesters need to be involved in the proposed monitoring and training programmes for the agency's new collaborative stewardship programme. In the most recent meeting (June 1997), participants voted to form a three state association that would enable them to have more credibility with public and private forest land holders.

In conclusion, participation by local communities is an important strategy for sustainable natural resource management, but there is need for greater clarity and understanding about how this 'community' is defined in relation to the resource in question before community-based natural resource management is endorsed.

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