Land Tenure and the 'Evidence Landscape' in Developing Countries

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Abstract

The utility of landscape as an important component of cultural geography continues to evolve. This paper demonstrates the utility of the landscape concept in reconciling informal and formal land rights. Land tenure has proven to be one of the most perplexing issues in the developing world. The inability of formal and customary property rights systems to effectively connect in ways that provide for tenure security creates dilemmas not easily overcome. Typical manifestations of this incompatibility involve problems relating to land claims and disputes, which rest upon proving access and ownership rights. Such proof is at the heart of both the capital-poverty-property rights argument and the rights recognition approach, as well as non-commodity, identity-based, and service attachments to lands. This article argues that evidence proving (attesting to) rights to land is an important but overlooked domain of interaction for formal and customary tenure systems, and where opportunity resides for a potential contribution to effective cooperation between tenure regimes; and, that this evidence is embedded in the same landscapes that are and have been of interest to cultural geography. This 'evidence landscape' is examined in the context of its utility and connection to customary tenure and formal law, and how it plays a role in attending to tenurial incompatibility in three cases: Mozambique, East Timor, and the Zuni of the U.S.

Keywords: land tenure, cultural geography, evidence, landscape.

Introduction

Landscape is a central notion in geography, with a rich body of literature that provides opportunities for understanding relationships between people and land, and the articulation of meaning within such relationships. The treatment of landscape is of interest to the sub-field of cultural geography, where social relations about land is a prominent theme. In an international development context, researchers are struggling with a pervasive landscape problem: how to reconcile formal and informal land tenure regimes. This issue has significant implications for large populations in many countries in the developing world.

The pervasiveness of the ongoing incompatibility between informal customary land tenure and formal state property rights regimes in the developing world has major repercussions not only on development, but also on issues of conflict, resource degradation, and the role of property in the operationalization of capital (Bruce and Migot-Adholla 1994; McAuslan 2003; Okoth-Ogendo 2000; Platteau 1996; Meinzen-Dick et al 2002; Gausset et al 2005; Hussein and McKay 2003;; Otsuka and Place 2001; Blomley 2004; de Soto 2000. As the academic and development community has recognized the problems that result from the separation of customary and national land tenure systems, two broad approaches have been developed to connect smallholders with national property rights systems. The first seeks to provide title as proof of possession of land

(Migot-Adholla and Bruce 1994; Carter et al. 1994; Roth et al. 1994a; Roth et al. 1994b; Golan 1994). Many experiences, however, have revealed that giving title to small-scale agriculturalists often accomplishes neither inclusion nor linkage between tenure systems (Bruce et al. 1994; Lemel 1988; Roth et al. 1994a; Golan 1994; Migot-Adholla et al. 1994; Bromley and Cernea 1989; Unruh 2002a).

The problematic nature of titling efforts has led to a second approach, which promotes giving official recognition, under national legal codes, to diverse, local, in-place patterns of access to and control over resources (Quan 2000; Delville 2000; Bruce and Migot-Adholla 1994; Shipton 1994; Tanner and Monnerat 1995; Samatar 1994; Lane 1991; Swift 1991). While attempting to incorporate informal land rights and customary laws into formal law is important, this approach produces another tension: it is extremely difficult for formal law to incorporate diverse customary rights and laws while creating a law that is predictable and equally open to all citizens. The diversity of customary land tenure systems, which are often fluid and based on lineage or ethnicity, may frustrate a state's requirement for a uniform enforceable code (Guadgni 2002; Unsworth 1994; Maganga 2003; Roberts 1994; Elias 1994; Pipes 1999; de Soto 2000; McAuslan 2003; Unsworth 1994).

To overcome the contradictions within and incompatibilities between these two approaches, this article develops a new analytical focus that joins geography's "morphology of landscape" (Sauer 1963) with Western-based evidence law. This combined approach connects customary rights to formal law by considering real cultural practices embedded in landscape – in other words, 'what people are doing on the ground.' From this perspective, landscape-based evidence serves as the essential anchor for customary land tenure rights. Proving that customary communities, households, and individuals have some form of claim to land is a prerequisite to acknowledging rights to those lands, since the evidence attests to rights. In essence the 'evidence landscape' is comprised of spatially explicit features that can be used to access, or make the case for the existence of, human social relations about land that are relevant to spatially-based claims. While the importance of the designation or derivation of evidence in ownership, claiming, and disputing is significant, the issue has not yet received attention in the literature on the disconnection between customary and formal land tenure in the developing world. Landscape-based evidence is potentially significant, but currently underutilized, in establishing customary land tenure rights. The "evidence landscape" approach also demonstrates geography's increasing relevance to international research in development and conservation policy (Warf et al. 2004; Zimmerer 1994; Zimmerer and Young 1998; Wood 2004; Blaike and Brookfield 1987; Turner et al. 1990).

In the next section, I explain why cultural geography is best positioned to articulate and translate landscape-based evidence. This is followed by a discussion of the primary issues involved in adaptation and adjudication in tenure systems, an examination of the nature of the evidence domain, and a consideration of three examples of the evidence landscape.

Cultural Geography and the 'Evidence Landscape'

Cultural geography's examination of "the active role of human groups in transforming natural environments" (Cosgrove 2002, 134) is a key foundation for considering landscape features as evidence. Thus it is the 'morphology of landscape' (Sauer 1963) that results from "the agency of culture as a force in shaping the visible features of the earth's surface in delimited areas" (Cosgrove 2002, 138) that is of utility due to the connection between visible landscape features and local meaning. In this context, a consideration of landscapes as representations, which communicate many varied messages and readings is valuable (King 1996; Barnes and Duncan 1992; Schein 1993; Pred 1997). Such representation, made possible by the appropriation, recomposition and particularization of the meaning of culturally specific landscape material (Duncan 2000; Valentine 2001), constitutes the translation of such material into meaningful evidence for claims to land. Duncan (2000, 704) notes that "people accept cultural ideas and social relations embedded in landscapes because landscapes are taken for granted as material facts of life."

In a similar vein Odgaard (2003) highlights the importance of social relationships to land rights, and Berry (1997) observes that land rights are not only understood as rules and laws, but as a function of daily interaction. Cleaver (2003) highlights the importance of daily interactions to institutional formation, noting that without the "social embedding of new arrangements, bureaucratic institutions are unlikely to be effective" (Cleaver 2003, 15; also Maganga 2003; Van donge 1993). And Mathieu et al. (2003, 119) note that inscriptions on the landscape are "also acts of 'formalisation' which have a high degree of social visibility…." and in cases of transfer of land rights, such formalization "signifies a public claim, on the part of the buyer, and a public acceptance, by the traditional indigenous owner, of the permanent transfer of rights." Moreover, intentional reinterpretations of the dominant or common readings of landscapes create new spatially-based representations (Creswell 1996). In this regard, one view of the cultural turn in geography is relevant, whereby "meaning is actively constructed, negotiated and contested, always constituted through the shared discourses of human and non-human agents" (Crang 2002, 142; see also Barnett 1998).

Such interpretation and reinterpretation is also a fundamental aspect of Western formal legal conceptions of evidence, as I will discuss later (Dennis 1999). That significant local meaning can be accessed through the morphological characteristics of the cultural landscape is of important legal utility. This is particularly the case because social relationships regarding land(s) are ongoing and binding, bringing a needed enforcement aspect into decisions regarding claims or disputes. Thus while debates critiquing cultural geography's emphasis on the visible form (morphology) as opposed to process (Cosgrove 2000) are valuable, it is the connection of the visible, to cultural, social, economic, and political process that constitutes the value of cultural geographic evidence.

Evidence and Adaptation

Evidence and Legitimacy

Fundamentally, evidence must be of ongoing value and utility in both customary and formal land tenure systems. Unless evidence or proof of claim is connected to local cultural reality and logic – and title in the rural developing world usually is not – as well as being relevant to formal law, it will not have value within the customary land tenure system and will not likely deliver the hoped-

for outcome within the formal tenure system. The problem of such 'proving' is at the heart of both the rights recognition argument (Quan 2000; Delville 2000), the popular capital-poverty-property rights approach (Pipes 1999; de Soto 2000), and attachments or claims to land based on identity, religion, and various insurance and security functions (Bruce and Migot-Adholla 1994; Cohen 1993; Unruh 2002a). At the same time, the Western legal tradition in evidence law is now significantly pervasive and growing in influence in the developing world (McAuslan 1998; 2003). The fundamental intent of this legal tradition is to deliver legitimacy of authoritative decisions that depend on the freedom of concerned parties to collect and present *any* evidence that they believe to be relevant and of probative value (Dennis 1999; Murphy 2003; Robillard et al 2002). However, connecting systems of customary social and cultural reality with spatially-explicit constructs that have utility as evidence and proof in a formal legal system remains overlooked, elusive, and undefined. Landscape-based evidence is also useful because in many circumstances people purposefully transform landscapes in order to create evidence of claim, access, or ownership. Examples include planting of economically-valuable trees, clearing trees or brush, and locating family graves (Odgaard 2003; Unruh et al. 2005; Mathieu et al. 2003).

Evidence as Argument

Evidence proving rights to land is an important domain of interaction between formal and informal tenure systems (hence the presumed value of title), and where significant unrealized opportunity may reside for potential compatibility. Deriving such evidence involves making logical connections between the existence of observed reality, and the interpretations, inferences, and conclusions regarding that reality so as to derive evidence for claim, such that an 'argument' of sufficient strength is made. In other words constructing an argument is the process of bringing evidentiary meaning to a purported fact or observation (Murphy 2003). The 'argument' notion is important. All claims to land are part of a construction of an evidence-based 'argument for claim.' Even formal title, or long-term occupation, are only arguments based on evidence that can be, and often are, contested—as are claims based on tribal, ethnic, religious, and other identities, or group membership.

Thus evidence is not information, or an institution, but rather an 'argument.' In a Western legal context such arguments have two components: facts, and the inferences and conclusions drawn from facts (Garner 2000; Murphy 2003). An argument can be strong, weak, true, untrue, convincing or unconvincing, and corroborate or contribute (strongly or weakly) to other 'arguments' to make a more persuasive argument. The legitimacy of evidence depends not only on the interpretation or translation of reality into evidence, but also on the acceptance by 'others,' that the inferences, interpretations, and conclusions are logical. In other words, arguments must make sense within a widely-accepted logic (Murphy 2003). Making such a logical connection in deriving or 'rendering' evidence is fundamental to the philosophical and logical foundation of the formal legal concept of evidence (Murphy 2003; Robillard et al 2002). For this reason, I contend that it will be much easier to secure land tenure by getting Western-based formal law to attend more closely to its own traditions in the treatment of evidence, rather than attempting to incorporate customary rights into formal law, or to change customary tenure via titling.

Ongoing Adaptation

A comprehensive volume entitled *Searching for Land Tenure Security in Africa* (Bruce and Migot-Adholla 1994) examine the disconnection in African land tenure through eight research projects in seven countries, along with a comprehensive literature review. Given the problems associated with attempting to replace customary tenure with formal tenure, the authors come to the conclusion that there must be movement away from the "replacement paradigm" toward an "adaptation paradigm" (Bruce and Migot-Adholla 1994, 261). Such an adaptation approach is evolutionary and implies a clear acknowledgement of the legal applicability and enforceability of important aspects of customary tenure, and in particular focuses on adjudication as a primary vehicle for adaptation between customary and formal tenure systems (Bruce et al. 1994). The significance of the Bruce and Migot-Adholla (1994) adaptation argument, is the importance not only of the recognition of customary ways by formal law, but the evolutionary transformation of customary law as well, in reaction to interaction with formal law. The utility of evidence in this adaptation is two-fold: first, its role in legal adjudication, and second, its role in making an informal argument for claim in the absence of effective institutions for land rights.

The Role of Adjudication

Bruce et al. (1994) highlight that some of what has been learned about the process of adaptation includes the primary importance of conflict resolution (also Moore 1986; Rose 1992). They point out that there is a need to look at "how dispute settlement mechanisms can best be framed to facilitate the process of legal evolution" (Bruce et al. 1994, 262). Berry (1990) argues that, instead of rewriting laws dealing with land, governments should focus on "the mediation of what, in changing and unstable economies, will continue to be conflicting interests of farmers and others with respect to rights in rural land." McAuslan (1998, 544) also notes the central role of adjudication with regard to land laws in Africa, "[t]he successful implementation and general public acceptance of new land laws and new rights, obligations, ways of doing things and official powers will depend to no small extent on whether efficient, effective and equitable dispute settlement mechanisms are put into place." And the World Bank (1989, 104) acknowledges that, "[j]udicial mechanisms for dealing with disputes between owners claiming traditional versus modern land rights are urgently required."

Because some of the most common and problematic interactions between customary and formal tenure regimes exist within the domain of competition and disputing, this becomes an important arena for transformation (over time) of both customary and formal ways (Bruce et al. 1994; Moore 1986; Rose 1992). The role of adjudication brings considerable focus to the functioning of evidence as an important medium of interaction within adjudication—including extra-legal and alternative forms of settlement. In this regard the most important question is, what aspects of customary interactions with lands are both connected to ongoing social relations about land, and exist as workable legal forms of evidence?

The Role of the 'Informal Argument' - Evidence or Institutions?

While the existence of effective institutions for adjudication is important, lack of formal institutions to utilize evidence does not prohibit evidence from being widely used to make an argument for claim to land. And in reality the reverse is often the case. Where effective, legitimate institutions are lacking, the emergence of certain forms of landscape-based evidence can be particularly robust, especially forms which connect with formal notions of claim such as 'occupation.' Purposefully planted trees deserve particular mention in an evidentiary context due to the very clear connections made between social relations and landscape. The literature regarding the tenure role of trees is significantly large (Raintree 1987; Meinzen-Dick et al. 2002; Otsuka et al. 2001; Rocheleau and Edmunds 1997; and Fortmann and Ridell 1985 is an annotated bibliography on the topic with 414 entries). Economic, marker, and service trees are notable for their pervasive role as legitimate evidence for claim within customary systems, and their strong connection with formal legal notions of long-term occupation or presence. And Cohen (1993) articulates the powerful informal role of tree planting as evidence in asserting land claims in the contested landscapes of the Middle East by both Palestinians and Israelis, given that legitimate institutions to resolve claims between these two groups are lacking.

That tree planting serves as powerful evidence for land claims is underscored by the restriction on tree planting by certain groups (such as women, tenants, and migrants), and the failure of agroforestry programs that do not take this tenure aspect of trees into account. Trees are valuable for land tenure claims because they make the "right" evidentiary connections among the physical, social, and cultural realms. Tree planting also suggests the utility of other forms of evidence that link these same realms, as the Mozambique and Zuni cases below illustrate. And Schroeder's (2000) work in The Gambia highlights the temporal and spatial dynamics of tree ownership and claim, particularly between men and women. Such dynamics are important to the interpretation and reinterpretation (over time, by different actors) of the readings of landscapes, and hence to making (and re-making) different 'arguments.'

While planting economic trees can be one way to make an argument for claim, clearing land is more pervasive as a means of creating evidence of occupation and thus claim. This practice is also of great concern for environmental conservation. Deforestation as a form of evidence is widespread in part because it is so effective. In one sense, the more lacking local to national institutions are for adequately treating evidence (claim, dispute resolution), the greater the need to make a strong visible argument for claim, in order to preempt, to the degree possible, the likelihood of a counter-claim and therefore the need for an institution to resolve a dispute. Brazil's grand colonization schemes in the Amazon provide a well-known examples of this phenomenon. In spite of the government having provided settlers with land titles, in some cases settlers themselves have cleared much more land than they can cultivate in an effort to secure their claim (Fernside 1986; Postel 1988). Other examples of clearing land to create evidence of occupation where effective institutions are lacking can be found in the Philippines (Uitamo 1999), Uganda (Mulley and Unruh 2004; Aluma 1989), Cameroon (Delville 2003), Zambia (Unruh et al. 2005), and Sierra Leone (author's fieldwork 2005).

Such clearing is one way that adaptation between formal and informal tenure systems may occur, since this form of evidence fits with a concept contained in formal law, that of occupation. That such a feature of adaptation can result in land degradation reveals the negative aspects of adaptation if it operates in a one-sided fashion. On the other hand, if formal law generally held

other forms of landscape-based evidence to be as important, or more important than 'clearing to claim,' would this reduce the need to pursue such an arduous form of evidence (clearing) when other forms would do?

Delville (2003) notes in several countries (Rwanda, Ivory Coast, Benin, Senegal) the derivation of evidence (informal pieces of paper) and procedures that attest to land transactions, in the absence of institutions and laws to handle such evidence (also Andre 2003). This absence, however, does not prevent such evidence from having great utility as an informal argument, a way to 'make the case' for the existence of rights (Deville 2003). In effect such 'pieces of paper' participate in the translation of landscape evidence--boundary represented in pieces of paper, and witnesses whose signatures attest to boundary location. Meanwhile Lund (2002) observes that negotiation plays a key role in land claiming and adjudication and that a variety of actors are engaged, as "all sorts of tactical and strategic manoeuvres that affect the outcome in terms of changing, transforming or solidifying a land claim" (Lund 2002, 18) are pursued. Such maneuvers, strategies, and assertions, in attempting claim or defense of claim without using institutions, are based on various forms of evidence attesting to the assertion, or supporting the strategy, whether this be continued use and occupation, a receipt of purchase, membership in lineage or other group, or testimony of authority figures, friends, or neighbors.

What tree planting, 'clearing to claim,' and the rendering of 'pieces of paper' have in common in a tenure context, is that they can come about due both to the absence of effective institutions regarding land, and the relationship between tenure security and evidence. The recognition of the role of informal legalities in the absence of institutions is not new. There is a significant body of literature that focuses on 'law, culture, and society' issues that deal with land claiming and dispute settlement without courts, order without law, law as social process, the 'shadow of the law,' and folk law (Nader 1997; Moore 1973 2000; Delville 2003; Ellickson 1991; Renteln and Dundes 1995). Thus the real utility of such evidence is that it creates an informal 'legal discourse' (Blomley 1994) of claim based on what is commonly thought to be legitimate and workable forms of evidence of claim.

Adaptation or Evolution?

While the adaptation paradigm highlights the evolutionary nature of change in both customary and formal tenure systems as these adapt to each other, this approach is significantly different than the 'evolutionary theory of land rights' (World Bank 1989; Demsetz 1967) which Platteau (1996) effectively critiques for sub-Saharan Africa. The evolutionary theory holds that population increase results in land scarcity, change in land values, increased uncertainty, and conflict; as a result, the populace demands and the state delivers more secure property rights via title. By using population increase and land scarcity to be its primary drivers, the theory assumes that the evolution of customary property rights occurs in isolation from interaction with formal tenure systems, which is the central theme of the 'adaptation paradigm.' Moreover, the theory is problematic for a continent as diverse as Africa, and its evolutionary trajectory operates in isolation from the effects of pervasive socioeconomic convulsions which dramatically change population-land scenarios in parts of the developing world. These include famine, armed conflict (often over land), forced dislocation, and subtractions of people from the land-labor nexus via endemic diseases such as malaria and HIV/AIDS.

As a result, land scarcity is not the only, or even the prevailing way that land conflicts are generated in many locations. Platteau (1996, 38) notes, "there seems to be an emerging consensus that several key predictions depicted [in the evolutionary theory] typically fail to materialize." Of particular relevance is the low level of trust which many customary populations can have toward the state regarding a number of issues, but especially over land, often for historical reasons. So that however strong the response by the state for the provision of the necessary security via institutions and title, trust in these can frequently be low, and as a result so will their effectiveness (Platteau 1996). Moreover, the evolutionary theory assumes that customary landholders do not innovate or derive solutions to problems and are essentially powerless, which of course is not the case (Delville 2003). Thus while both the adaptation paradigm and the evolutionary theory involve change over time, the orientation of the two are distinct, and this article focuses on the former.

The Evidence Domain

The 'Legal Heritage' of Land Laws

Legislation imported to colonies by European rulers have an enduring legacy in developing country land laws in particular, and play a primary role in the ongoing disconnection between formal and informal approaches to tenure (McAuslan 2000; de Moor and Rothermund 1994; Okoth-Ogendo 2000; Home 2003). Thus while almost all colonies have enjoyed at least several decades of independence, with regard to land laws most have retained the "legal heritage" left by colonial rulers (de Moor and Rothermund 1994, 1; see also McAuslan 2000; Okoth-Ogendo 2000; Joireman 2001). Africa provides compelling examples (McAuslan 2000; Okoth-Ogendo 2000), as do the Americas (O'Brien 1998; Shattuck 1991; Coates 2000; Ewald 1994; Munneke 1994), Asia (Frykenberg 1969; 1977; Ghimire 2001; Slaats 1994; Rothermund 1994; Conrad 1994), and the Middle East (Home 2003; Khamaise 1997; Strawson 2002). The following discussion regarding evidence law draws from this legal heritage (Dennis 1999; de Moor and Rothermund 1994; Stevens and Pearce 2000; Reutlinger 1996; Kollewijn 1994), and attempts to articulate some of the more important aspects of evidence law, and how these intersect with customary evidence.

The links between developing country formal legal reality and Western law is significant, and likely to get stronger, particularly in some regions. McAuslan (1998, 525) notes for Africa that,

> "[i]ssues related to land reform in Africa are particularly relevant at this time, for a number of reasons. In the first place, the twin emphases of donors, led by the World Bank, on 'good governance' and the market economy as the keys to social and economic regeneration in Africa are increasingly seen as necessitating a greater reliance on legal forms and a legal culture similar to those operating in Western, market-orientated economies; conscious moves to adapt legal and judicial systems to that end are thus increasingly part of aid programmes. Secondly, land reform, while never off the African reform agenda as advanced by the donor community, is itself increasingly presented as being a candidate for legal—that is, Western-type legal—solutions."

And a broadly similar situation exists on the Indian subcontinent and in the Caribbean (McAuslan 2003). In this regard the technical legal phenomenon known as the 'reception clause,' is important, particularly in former British colonies. "Throughout colonial Anglophone Africa, the reception clause provided that, as from a specified date, the common law, the doctrines of equity and statutes of general application applying in England as on that specified date would apply in the particular

country named in the reception clause" (McAuslan 2003, 60). While different reception dates attend to different countries, for the 17 countries to which this applies in Africa, all reception clauses have survived and were confirmed in all cases at independence. As well these reception clauses have continued to survive and be reconfirmed in every constitutional change in all 17 countries since independence (McAuslan 2003).

> "In some respects indeed, the influence [of received law] has grown since independence; with the collapse in so many countries of a system of national law reports, judges rely on precedents from English and South African law reports which continue to be received in the law court libraries in lieu of anything else" (McAuslan 2003, 61).

And McAuslan (2003, 53) notes generally for the developing world that the lack of "a national legal literature of some intellectual depth and maturity," (different from the 'national law reports' noted above) has both hindered the development of a relationship between laws and social realities, and continued the influence of European law and the attempts at localization of these laws.

One feature of this context is the notion of 'adverse possession' in which occupation of the land in question for a period of time (registered or unregistered) can lead to the acquisition of title. Thus given the time that many if not most customary communities have occupied their land(s), adverse possession would in one sense appear to be a primary way for customary claim to intersect with formal law. But proving adverse possession relies on the necessary evidence attesting to the fact of occupation for the period of time in question (Robillard et al 2002; Stevens and Pearce 2000; Garner 2000). Hence the utility of adverse possession in this context hinges on the discovery, relevancy, and presentation of evidence so that it is argumentative, in other words has 'persuasive power.'

Legitimacy in Adjudication

The notion of legitimacy, as a fundamental objective of Western evidence law is particularly suited to the treatment of the evidence landscape in the context of the disconnection between formal and informal tenure systems. As Dennis (1999, 36) notes, regarding the overall intent of evidence law, "[i]f official adjudications are to succeed in gaining acceptance and respect as authoritative decisions, it is essential that they are, and are seen to be, legitimate." This form of legitimacy in law (termed 'legitimacy of decision'), is different than factual certainty of decision, regarding true facts of a dispute. Legitimacy of decision seeks legitimacy from the parties concerned and society at large, regarding notions of integrity, acceptability, and moral authority. In civil matters particularly, "the aim of adjudication is to settle disputes within a framework of economic, social and political relations that attaches considerable value to self-determination" (Dennis 1999, 42). Thus in civil adjudication, such as cases involving land, fairness of procedure and treating parties in a litigation can assume greater importance. This is because intent of the civil process has as one priority, the restoration of peace and equilibrium in society by the acceptable settlements of disputes . In this regard the parties concerned must be free to collect and present any evidence that they believe to be of probative value in order for the procedure and resulting decision to be regarded by the parties as legitimate (Dennis 1999).

Such legitimacy is not unrelated to formal admissibility of evidence. With the exception of where exclusionary rules prevail, relevance is the fundamental test of admissibility in Western evidence law (Dennis 1999; Emanual 1996; Murphy 2003). While there are variations in definitions of relevance, they tend toward the understanding that "there must be a 'probative relationship'

between the piece of evidence and the factual proposition to which the evidence is addressed. That is, the evidence must make the factual proposition more (or less) likely than it would be without the evidence" (Emanuel 1996, 12; also Dennis 1999). The purpose behind such a broad test of admissibility is, again, to provide opportunities for parties to an adjudication, to present their own evidence, thus promoting legitimacy of decision and procedure in the eyes of the claimants (Dennis 1999). Thus the 'adversary system,' as a method of formal adjudication in common law, whereby the opposing parties in a conflict are free to gather, interpret, and present evidence for their claim (Reutlinger 1996), seeks to engage this legitimacy.

McAlusan (2003) notes the specific connection between such legitimacy and the legal domain in Africa, observing that the "connection between land law and political stability was made an important basis for the system of indirect rule or rule through chiefs which characterized British colonial rule in Africa and was not entirely absent from other colonial systems" (McAlusan 2003, 70). And Cousins (1996, 49-50) notes a similarity to traditional African law:

> "…the objective of traditional courts or tribunals in Africa was to reconcile the disputants and maintain peace, rather than to punish the wrongdoer…[such] approaches tend to be process-oriented, focused on the need and desires of the people, rather than the results. Values of respect, honesty, dignity and reciprocity are stressed."

In his critique of 'the evolutionary theory of property rights' Platteau (1996) articulates at length the relevance of legitimacy as a primary problem between African reality and the theory. Such a legitimacy problem can manifest itself in various ways, ranging from inertia on the part of smallholders regarding state-related land activities, to violence (Platteau 1996). In particular "[i]f people do not consider the new system of (land) rights to be legitimate, and refuse the reshuffling which it implies, they may succeed in blocking the normal functioning of the legal system. This can be especially true in young nations with 'soft' states as in Sub-Saharan Africa" (Platteau 1996, 61).

Customary Evidence, or Rights?

A distinction between the utility of evidence, as opposed to rights, is important for five reasons. First, because of the large variation in customary tenure forms and formulations (ethnic, geographic, religious, etc.) within any one country, focusing on a few broad customary tenurial patterns (rights) connected to simple forms of evidence (e.g., group membership) will not adequately engage the disconnection. Second, this same variation also means that formal law will not be able to embrace, and thus make legal, all of this variation in ways that are meaningful to the different customary structures, and still be operable as a formal, widely applied, and uniform system. And indeed the codification of customary law can in some cases capture and emphasize ethnic differences, as Maganga and Juma (1999) have shown for Tanzania. Maganga (2003, 60) notes "the activities of one group undermine those of another, and no one group is willing to adhere to the cultural practices of another." Ethiopia as an example has over 70 separate languages with a larger number of distinct social units.

Third, attempts at incorporating customary laws and other structural aspects of indigenous tenure regimes into formal law, finds that much in customary tenure can be fluid, reflecting variation and change in a variety of social, political, and economic variables, including capricious decision-making by leadership (Guadagni 2002; Roberts 1994; Unruh 2002a). Elias (1994) sees this very

uncertain formal legal environment as a fundamental obstacle to reducing customary laws to written codes. In a discussion of customary trends in comparative land law, Guadagni (2002, 8) argues that to "preserve customary law in any codified or restated form" would so rob this law of its flexible utility, that codification would essentially kill it. The goals of formalized property laws are different. Such laws are much less subject to change, hence their predictability, wide application, and value in operationalizing capital and other aspects of property associated with land as a commodity (Unruh 2002a).

Fourth, some primary forms of rights, held as quite valuable by customary groups, are very difficult to incorporate into formal law. Rights to land based on tribe, ethnicity, lineage, opposition to a particular group, or position in a customary hierarchy, can have large meaning within customary tenure regimes, but can be of limited or no utility in formal tenure regimes. In fact, such rights may directly contradict the goals of formal tenure systems that elevate notions of wide applicability and equity in the context of individual rights. This is a significant problem in attempting to legalize rights attached to groups. Finally, conflicting and contradictory rights and laws, both between different sets of customary law, and between customary and formal laws is a large and difficult problem (Unsworth 1994).

These issues highlight the importance of understanding usable evidence coming from customary life, as existing within a domain of human interaction with the landscape. And from this interaction many possibilities can be drawn that attest to the veracity of the interaction (corroboration), and hence the existence, or perceived existence, of rights for such interaction to occur in the first place. And Western evidence law is quite compatible with this. Dennis (1999,12) describes the law of evidence as not "a tidy system of clearly defined rules" but rather "indisputably untidy and extremely complex," in which nearly everything that is relevant is admissible. Robillard et al (2002) and Robillard and Wilson (2003) describe the formal evidence of boundary location and control in a land and property rights context, and how a very wide variety of evidence—including evidence that is centuries old and embedded in historical and cultural landscapes--is used in dispute resolution, surveying, and resurveying.

Illustrative Cases

Three examples in different circumstances illustrate the potential contribution of the evidence landscape to managing the disconnection between formal and customary tenure regimes: Mozambique, East Timor, and Zuni lands in the U.S.

Mozambique

Mozambique in the early 1990s was recovering from a 23-year civil war in which over 40 percent of the national population was dislocated. As approximately six million people were returning to occupy or seek new lands, the government realized the severity of the problem created by the prevailing land law and its emphasis on documented title for all landholders (Tanner 2002). Postwar land tenure in Mozambique engages a particularly difficult national issue, which is the problematic relationship between the many relatively large commercial interests, and the

indigenous or smallholder sector. These two groups frequently claimed the same land, but under different regimes of authority, legitimacy, and proof.

The problem, more specifically, became one of defining what was regarded as legitimate evidence by whom. Such an evidentiary problem in a postwar context becomes particularly difficult because the prevalence of weapons can quickly lead to violence in land disputes. The research on the spatio-evidence problem (Unruh 1997) examined customary evidence according to its social and cultural-ecological character, and found that a shift in landscape-based evidence subsequent to the war had the effect of selecting for forms of customary evidence that were more compatible with the formal tenure system (regarding occupation), particularly agroforestry trees (Table 1). Such trees became singularly important, because they were easily and strongly tied to social evidence (particularly historical social evidence), and because they complied with the widely known definition of occupation in formal law (Mozambique Land Law 1997; MPPB 1997; Norfolk and Liversage 2003; Pancas 2003; Kloeck-Jenson 1998). Forces associated with the war and the tenurial disconnection between customary, migrant (war displaced), and formal tenure acted to put even greater weight on older agroforestry trees compared to younger trees and other forms of evidence (Unruh 2002b). This suggests that even in situations where formal and informal institutions regarding property rights are most disrupted (subsequent to war), agroforestry trees as legitimate evidence can be or become quite strong, particularly relative to other forms of evidence.

The results of the research were incorporated into the Mozambican Land Commission's deliberations on land policy reform for the country, including the admissibility of various customary forms of evidence attesting to occupation. In the new land law such forms of evidence are now not to be prejudiced by or inferior to rights received through a formal written title (Mozambique Land Law 1997; Negrao 1999; Norfolk and Liversage 2003). The reasons for the government's desire to incorporate customary evidence into the law were to facilitate: a) peace in the country given that most smallholders returning to lands did not have documented evidence; b) joint ventures between smallholder communities and investors due to an empowered position of smallholder communities (elaborated below); c) conflict resolution outside of the court system (elaborated below); and, d) reintegration onto rural lands so as to encourage agricultural recovery and improvement in food security. While other important rights (other than those pertaining to evidence) were also included in the revised law, such rights nonetheless rest on proving occupancy or other attachments to location.

The enhanced position of customary evidence in the new Mozambican law is linked to a debilitated set of land and property institutions subsequent to the war, including a weak court system (Norfolk and Liversage 2003; MNA 1999; Pancas 2003). This relationship between the greater role for customary evidence and weak formal institutions is important. From the Mozambican government's view, the intent of making evidence to rights in land and property clear and strong in the law, is to make a substantial contribution to the extra-legal resolution and avoidance of conflicts, particularly between small and largeholders (Garvey 1998; Norfolk and Liversage 2003; MNA 1999). While not thought to pre-empt all conflicts, such an arrangement means that investors (foreign and national) need to negotiate directly with in-place local communities. This occurs due to the empowered position of local communities via the rights attested to by evidence of occupation, and as a result the community participation requirement in determining what areas are really 'open' or not (de Wit 2002; Pancas 2003; USDS 2001; Kloeck-Jenson 1998; Tanner 2002; Hanlon 2002; Norfolk and Liversage 2003). This position is given strength because the current

land policy states that occupation according to customary evidence constitutes one way in which the use right attributed by the state is acquired without the need for documents (Hanchinamani 2003). Such evidence and rights were not seen as new, and did not have to be authorized – the law recognized them and offered them full legal protection (article 12; Tanner 2002).

The Mozambique case looked at three sets of villages in the provinces of Nampula and Cabo Delgado totaling 544 households. The three sets comprised different proportions of war displaced (migrants), western Nampula 10 percent, Monapo 23 percent, and Montepuez 73 percent. The sampling strategy is described in Unruh (2002b). Table 1 illustrates that the different village sets prefer different types of evidence, with available evidence in this case categorized into social, cultural-ecological, and physical. Social evidence is oral or testimonial, and is provided or confirmed by members of a community. This type of evidence relates to historical occupation, and ties individuals, households, and land to local communities. Social evidence can corroborate physical, cultural-ecological, and other social evidence. Cultural-ecological evidence is defined as the physical pieces of evidence that exist due to human activity on the landscape, such as agroforestry trees, current and old field boundaries, tombs, cemeteries, etc. This evidence best demonstrates occupation and use, and can corroborate social evidence and other cultural-ecological evidence regarding human activities relevant to land. Cultural-ecological evidence however is problematic exclusively on its own, and to a significant degree needs corroborative social evidence for meaning. Physical evidence is comprised of naturally occurring terrain features. Such features are easily observable to anyone, demonstrate relative familiarity with an area, and usually corroborate no other category of evidence.

Table 1 illustrates that the western Nampula set favors social evidence more than the other two. And the Monapo set favors no evidence type over the other, having more of a balance between evidence categories. The Montepuez set favors physical evidence. The differences in evidence type for the three village sets reflects what evidence can be accessed given different situations in different places following the war. The Montepuez set is perhaps most noteworthy. Because most inhabitants in this set are migrants from elsewhere due to the war, and thus do not possess the same community - land connection or community cohesion, as do households within the western Nampula or the Monapo village sets, availability of social and cultural-ecological evidence is less.

For the three village sets in the study, the presence of agroforestry trees is the single most important piece of evidence for defending or asserting rights to land, regardless of the average number of trees per smallholder (Table 2). While nearly all households consider trees as quite valuable evidence, many did not actually possess the evidence, and in Montepuez very few posses significant numbers of trees. In most cases this is because migrants are prevented from planting trees on lands they have been temporarily allocated by the local landowning communities.

The Mozambique case illustrates several points. While institutions for dealing with evidence in disputes are important, their absence does not result in a reduced role for evidence. On the contrary, reduction in the presence, effectiveness, and legitimacy of institutions (formal and informal) in Mozambique meant significant reliance on certain forms of evidence most able to connect the social and cultural with the visible physical (Unruh 2002b). The utility of strong evidence in the absence of institutions has not gone unnoticed by the Mozambican government, who has made forms of customary evidence legal in formal law, with the intent of avoiding, or pre-empting as many conflicts as possible (Unruh 2005). And, the different circumstances experienced

by the village sets can result in value placed on different forms of evidence. This highlights the fluid nature of the evidence domain, reflecting social circumstances and relations, and suggests that admissibility of such evidence in formal law be as unrestricted as possible. Thus operationalizing the evidence landscape in this case making the connections between fact (observations) and argument (inferences, interpretations, and conclusions drawn from fact) have focused on the combination of specific physical and social features, and the interpretation of these as effective 'occupation.' This type of interpretation is made formally legal in the new law, with equal weight to title.

East Timor

In East Timor the 1999 conflict resulted in the destruction of almost all documents relating to land and property, such that current use of titles and other documents as evidence of ownership and access is extremely difficult (Marquardt et al. 2002). Moreover most of the rural land held by customary communities was never titled (Marquardt et al. 2002). The current East Timorese government, in acknowledging the tenurial difficulties, is presently researching local rural and urban realities as well as national and international issues regarding lands, so as to inform the derivation of national property rights laws (Nixon 2004; USAID 2003; Marquardt et al. 2002). A priority in the effort is to minimize the tenurial incompatibility between rural customary landholders and commercial and state interests. Local customary evidence figures prominently in this research, and includes significant landscape-based cultural geographic evidence (Table 3) (Nixon 2004; Unruh 2003).

What the East Timor case reveals, is both an enhancement of evidence as a medium of interaction with a decrease in the presence of effective institutions, and the need to leave the evidence domain as unstructured as possible in formal law. Table 3 illustrates the general agreement regarding what constitutes legitimate evidence between those holding state administration positions at various levels, and members of two customary communities. Prior to the violent departure of the Indonesians and the accompanying social upheaval, the only formal state evidence of ownership was an Indonesian land title (Fitzpatrick 2002). The general agreement in evidence (Table 3) subsequent to the upheaval and with the lack of effective institutions in-place, presents a potential opportunity for future East Timorese land law to utilize such compatibility in lawmaking. At the same time the variability in what the three samples regard as 'very important' to 'very unimportant' evidence suggests caution in the establishment of formal evidence rules or norms that bar admissibility based on factors other than relevancy; that value some forms of evidence over others for reasons apart from probative value; or that unduly constrain, apart from ethical concerns, the way evidence is collected, discovered, or researched (also Bailliet 2003 for Guatemala). Significant efforts are underway in East Timor to mesh formal and customary tenure systems, with priority placed on evidence as a medium of interaction between the emerging systems (Unruh 2003).

In this case the operationalization of the evidence landscape involves the lack of a formal system, together with a diminished role of the customary system in areas that suffered dislocation and transmigration, and the enhanced role of a 'what works' set of evidence for migrants, and local populations overwhelmed by migrants. Such a situation results in surprising agreement between customary evidence and what local state officials view as legitimate evidence. Such agreement appears to be continuing, and what works on the ground is currently becoming incorporated into formal law as evidence. This allows formal law to engage or 'grow into' what people are already doing, such that evidence that is already 'operationalized' informally, then becomes formal.

The Zuni

In an example from the American Southwest, the Zuni Nation has successfully pursued three major court cases against the American government for damages to Zuni claimed lands and confiscation of lands in the course of western settlement (Hart 1995; Ferguson and Hart 1985). This was accomplished without title as evidence (Hart 1995). This example, while occurring in a developed country, is meant to illustrate the degree to which the evidence landscape can be used in land claims and dispute resolution between formal and informal tenure systems. Thus while in a number of ways the case and the evidence are not completely replicable in many developing country circumstances, there are significant parallels in terms of land rights, development, and marginalization, and the point is to demonstrate the large utility of the landscape to act as an archive of evidence, and as an example of the many ways such evidence can be 'rendered.'

In the Zuni case the evidence landscape used was largely historical, and began with researching evidence of physical landscape change connected to large-scale tree cutting and other land use by white settlers on Zuni claimed land, and the subsequent erosion and changes in fluvial geomorphology (Hart 1995). Evidence was collected using soil coring that revealed biophysical landscape changes connected in time to social processes of tree cutting, settlement, and the traditional land use activities of the Zuni. The effort linked historical physical geography with testimonial evidence from the Zuni, and expert testimony from the fields of anthropology, archeology, ethnography, and history that attested to where, when, and how events took place on the landscape (Hart 1995). The amount of time spent collecting and correlating all of the evidence, including map production (Ferguson and Hart 1985) ultimately proved quite powerful, with the tribe in one case wining a $25 million settlement, in another land access, and the establishment of a $25 million trust in the third case (Hart 1995). In the Zuni example the broad question was the same, what spatially-based evidence is translatable from reality, and is of meaning in both Zuni (i.e., correlated with social evidence) and formal law contexts.

While there exists extensive field data relating to the evidence landscape of the Zuni case (Hart 1995; Ferguson and Hart 1985), only a few types are mentioned here for illustration. Stauber (1995, 137) describes the "recapturing" of the landscape in the Zuni case using old US

Government Surveys. This approach (which has a parallel in colonial occupation and administration of lands in the developing world) used General Land Office (GLO) surveys made between 1880 and 1912. Both the plat maps and the accompanying field notes comprise a large-scale historical geography providing particular information over a 36 square mile area at a single point in time. Approximately 2000 pages of GLO survey notes and maps were examined by the case, and data compilations were made along criteria determined to be evidentiarily relevant. These included both environmental criteria (landform characteristics, soil type and quality, vegetation species and condition including quantity and quality of timber species, quantities of minerals, water resource characteristics, drainage characteristics), and cultural criteria (soil and water control features, agriculture and agricultural features, grazing and grazing features, architecture, transportation networks, industrial operations, and ethnographic and historical information dealing with attitudes or activities of the time) (Stauber 1995). In addition, agricultural field polygons, peach orchards, buildings and corrals for the entire area of concern were extracted from the GLO plats and placed onto a single scaled map. This information was compared with air photos from the 1930s, 1950s and 1970s, together with field measurements and interviews with Zuni informants, archeological fieldwork, and historical record research, to compile a record of occupation and change over time (Stauber 1995). This approach allowed specific changes ('damages' in the court cases) to be located and calculated over time. Thus the combination of the GLO surveys, aerial photography, and Zuni testimony proved quite valuable in that they dealt with information regarding who was using the Zuni landscape, what resources were present, and the quantity and condition of those resources at the time of the survey. Zuni witnesses then compared this information with other current and historical data to calculate landscape change (Stauber 1995).

Zuni use of oral tradition as attached to landscape was also used in the litigation (Wiget 1995). Wiget's (1995) work on how to treat oral tradition and attach it to landscape so that it has evidentiary value, has application beyond the Zuni case.

> "The problem of how to substantiate claims that depend on testimonies from oral tradition is an especially serious one for traditional peoples for whom large spans of their history and large areas of their domain lack written documentation, and whose conceptions of history do not always conform to Western notions" (Wiget 1995, 173; also Eggan 1967).

The analysis of oral tradition attached to landscape was looked at within the criteria of validity, reliability and consistency. In this context validity refers to "the degree of conformity between reports of the event and the event itself as recorded in other primary source material" (Hoffman 1984, 70) such that validity can be a measure of corroboration (Wiget 1995). Reliability is "the consistency with which an individual will tell the same story about the same events on the different occasions" (Hoffman 1984, 70), and as such reliability is an outcome of replicability (Wiget 1995). Consistency is defined as "the degree to which the form or content of one testimony conforms with other testimonies. It differs from reliability by being a measure of conformity between, rather than within, traditions" (Wiget 1995, 179). Consistency as attached to landscape deals with the description (from multiple persons) of customs or practices that involve the landscape. In the Zuni case this included: the method of plugging gullies by setting rows of cedar branches and brush weighted with rock in a trench across a watercourse; the use of native irrigation techniques, including small diversion dams and wooden shunts; dry farming techniques using a digging stick;

the siltation of small dams due to overgrazing and erosion, and the replacement of good grazing grasses by noxious weeds due to overgrazing (Wiget 1995).

Wiget (1995) also pursued the development of thematic coherence in Zuni testimonial evidence regarding the landscape, in which certain narratives are created and interpreted regarding events and causation. The loss of draft horses as part of the government's destocking policy toward the Zuni, led to a dependence on machinery, which became too expensive and time consuming to use and as a result drove many Zunis out of farming, with repercussions for the landscape. As well, fencing led to overgrazing, which in turn led to erosion and then to siltation of many small dams. Fencing also prevented the free movement of stock, which made herding practices more difficult. Silted dams, changed watercourses, erosion, change in floodplain fields, and use of machinery decreased the extent and effectiveness of farming, with visible outcomes on the landscape (Wiget 1995). Thus for this approach to testimonial or 'parol' evidence, techniques of studying oral history and folklore are brought to bear on the rendering of evidence.

In addition, testimonial evidence was used to corroborate other forms of evidence. Wiget (1995) accomplished this by isolating the provision of testimonial evidence from other forms of evidence, until they could be corroborated later, so as not to influence the provision or recording of testimony. Part of the corroboration effort involved fieldwork subsequent to gathering testimonial evidence, which was conducted to verify the locations of a sample of land use sites involved in the testimonies (Ferguson 1995). Photography of these sites produced additional evidence, as did documentation and maps produced from the testimony of Zuni elders (O'neil 1995). In total 232 land use sites were documented, from which maps and boundary areas were derived attesting to forms of land use over time, much of which was corroborated with the biophysical analysis of landscape change. Additional approaches to accessing the evidence landscape in the case were also used. Geological corroboration of native traditions was used, based on Delaguna's (1958) work; landscape features relevant to folk tradition as facts of history were used based on Prendergast and Meighan's (1959) work; and Boyden (1995) used the manifestation of religion on the landscape as evidence.

The Zuni case also illustrates the importance of the interpretation of landscape features into meaning used as, or in, evidence. An important argument in the US Government's case was that extensive erosion was well underway prior to white occupation of the area. Evidence was provided from an array of historical documents (early explorers, Spanish era documents, and scientific sources), as evidence that the prevalence of arroyos (as indications of erosion) was widespread prior to white settlement (Monson 1995). In rebuttal the plaintiff presented as evidence the history of the word 'arroyo' as it changed meaning in Spanish and English over the course of four centuries (Monson 1995). Early accounts and use of arroyo indicated a stream, river, or other small volume of water. Later usages, particularly as the word entered English vernacular and English dictionaries, included the concept of 'dry gully' which, prior to 1888 did not exist in its definition (Monson 1995). The careful study of the meaning of arroyo helped contribute to the success of the

Zuni claims (Monson 1995). The illustrative point here is that, translation of landscape features into evidence, connects importantly with meaning, and can lead to important differences in interpretation, and hence argument.

The Zuni case highlights three points. First, that the potential for the evidence landscape is quite large—significantly larger than agroforestry trees and 'clearing to claim.' Second, that techniques for reading the landscape and rendering evidence from the landscape that intersect precisely with formal law can be developed. And third, that interpretations, and reinterpretations of the meaning of cultural geographic landscape features can play a significant role. This interpreting is an important part of both cultural geography, and the treatment of evidence as an argument in the Western legal tradition. In this case operationalizing landscape-based evidence meant attending to the very developed presence of Western law, and hence being as 'scientific' as possible by employing various techniques of archaeology, ecology, fluvial geomorphology, testing of thematic cohesion in testimonial evidence, and corroboration between different evidence.

Conclusions

Operationalizing the evidence landscape

A primary point of this paper is that established approaches within geography for reading landscapes and rendering evidence for formal legal purposes are essentially the same. The operationalization of the evidence landscape proceeds from landscape observations to logical interpretation, inferences, and then conclusions, to produce evidence, or arguments. Murphy (2003) describes the process of logical conclusions drawn from observations as fundamental to notions of evidence in a variety of both Western and non-Western legal traditions. The legal tools of such logical conclusions in formal law include: syllogistics, philosophies of cause and effect, cause and effect as a basis for inference from evidence, probability, and notably, semiotics (Cohen 1977; Murphy 2003; Schum 2003). The argument here is that cultural geography and in particular the 'morphology of landscape,' together with their 'fit' with how formal evidence law works, and the role of such evidence within customary communities, are, all together what best defines the functional composition of the 'evidence landscape.'

This composition can be elaborated when the act of 'reading landscapes,' and understandings of formal evidence, interact and influence each other. In the Mozambique case, formal legal notions of occupation held that economic trees were valuable evidence of rights, particularly in disputes between smallholders and commercial interests. Thus such trees served as popular evidence within the customary system, and allowed for other forms of evidence (testimonial, historical, ecological) to be read from the landscape and attached to trees. As well, forms of evidence emerging from different readings of the landscape in Mozambique--ancestral burial locations, locations of rituals, and in particular testimony--served to intrude on formal law and become legitimate evidence for claim as well. The result of this interaction is to contribute to the process of interpretation and logical conclusions drawn about evidence. In other words, operationalizing the evidence landscape

is a process of bringing evidentiary meaning to representations of social relations about land, and from this meaning produce an argument with regard to laws and formal institutions (Garner 2000; Reutlinger 1996), or in the absence of laws and institutions (Delville 2003; Unruh et al 2005), or in situations of hybrid tenure (combinations of formal and customary tenure) (Maganga 2003; McAuslan 1998; Okoth-Ogendo 2000; Platteau 2000; Toulmin and Quan 2000).

Where informal or customary legalities prevail, and effective formal institutions are largely lacking, or lacking in legitimacy, operationalizing evidence constitutes the making of an informal argument, with 'clearing to claim' and planting economic trees common. In East Timor the collapse of institutions and the rejection of Indonesian law, together with the destruction of land titles and records, meant initially the country existed almost entirely within informal legalities—including the absence of customary institutions in a number of locations. The result was that informal evidence as arguments for claim were pursued. Where formal legalities are more prevalent, stronger, and legitimate, as in the Zuni case, the logical conclusions reached exist within the context of laws of evidence, and the fit between the different 'reads' of the landscape, and specific types of legal evidence. Different types of formal evidence (demonstrative, forensic, traditionary, etc.) are useful for characterizing the role, effectiveness, corrobability, and limitations in the construction of an argument. Garner (2000) identifies 98 different types of formal evidence. What evidence types within formal law provide, with regard to landscape-based evidence, is a more direct and concrete 'translation' of customary reality into specific forms of evidence useful to formal law. Thus informal legalities can begin to adopt or 'read' forms of evidence that conform to formal evidence types, such as hand drawn maps, informally recorded agreements, and use of scientific (forensic) evidence (the Zuni case). For example the fit between clearing to claim, planting economic trees, and 'demonstrative evidence' is explicit.

Managing the disconnection

The larger repercussions from the ongoing incompatibility between formal and informal land tenure in the developing world are well known. Less clear are approaches that can effectively manage this disconnection. Significant attention continues to be focused on the need to incorporate structural aspects of customary tenure (particularly rights) into formal law (Deville 2000; Platteau 2000). However the tenurial incompatibility continues to operate in a situation of overall "structural chaos" (Moorehead 1979, 1), where a certain 'management' of the tenurial confusion that prevails needs to be considered, as opposed to attempting to bring order through formal law (for discussions of such management vs. order through formal law, see Piermay 1996; Mathieu et al. 1997; Moorehead 1997; Delville 2000). The problem at this point in history for developing countries is larger and more problematic than just fashioning local notions of property into a set of uniform enforceable laws. It is now the added dilemma of attempting to connect in a meaningful way, in-place, formal, European-derived property laws (which will not be discarded given how they are favored by urban elites and the investment and donor communities), and customary laws and activities which are bound up in ongoing social relations about land, and which service important social needs that individualized title cannot replace (Unruh 2002a).

This article argues for a much more in-depth consideration of the role of landscape-based evidence

to assist in managing the disconnection in tenure systems, as an overlooked domain of interaction between the formal and informal. Five ideas within this approach are most important. First, customary evidence is different from customary laws, rights, norms, hierarchies and other structural components of land tenure systems. Evidence, particularly that attached to the landscape, is the result of day-to-day interaction with the physical environment. And while this interaction can itself be the result of, or influenced by the more structural aspects of a tenure system, spatially-based evidence has considerable utility due to its cultural meaning, visible physical characteristics, and attachments to other forms of social and cultural evidence. Second, because spatially-based evidence is the result of social relations embedded in landscapes over time, the 'evidence landscape' is an archive of large potential for the collection and interpretation of relevant evidence. Third, the evidence domain optimally needs to exist as an unstructured field of interaction between formal and customary tenure systems, where all parties are able to collect, interpret, and present evidence that is relevant, without being constrained by rigid evidence rules or norms. This is important for legitimacy, and particularly so where social upheaval has occurred, and where large variation in land use histories; tenurial orders; and social, ethnic, religious, geographic, and economic groups are common. Fourth, the interpretation of landscape characteristics provides much in the way of useful evidence material that is different than a problematic set of customary evidence based on ethnicity, personal relation, lineage, etc. And importantly, it is different evidence than that based on social relations defined by opposition to another group(s) (e.g. the Palestinian – Israeli land question). Fifth, the parallel between the functioning of the evidence domain, the heritage of Western evidence law in the developing world, particularly Africa, and the subfield of cultural geography tied to landscape, provides an opportunity to engage a rich and useful tradition in human-landscape analysis.

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Table 1. Percent of village sets mentioning social, cultural-ecological, and physical evidence.

Evidence List	W. Nampula	Monapo	Montepuez
	Social Evidence		
Village elders	13	10	0
Local Leaders	25	10	0
Local organization	3	0	0
Testimony family	16	11	0
History of occupation	7	2	0
Knowledge of community area	3	0	0
Testimony neighbors	36	45	3
History of economic trees	1	2	1
	Cultural - Ecological Evidence		
Trails	4	3	1
Cemeteries	3	7	1
Location roads	4	0	0
Sacred areas	1	3	0
Ruins, old village	3	0	0
Economic trees	86	93	90
Tombs	15	7	0
Field boundaries	3	2	15
Location old crops	0	0	1
	Physical Evidence		
Local terrain differences	5	5	4
Very large trees	11	5	48

Location mountains	4	6	5
Termite hills	5	5	28
Rivers	8	11	28
Soil type	31	26	61
Near cotton land	0	3	0
Boulders	1	5	1
Location hills	0	1	8

(Western Nampula: n = 200, Monapo: n = 36, Montepuez: n = 208). Source, Unruh 1997.

Table 2. Summary of variables regarding agroforestry trees as evidence.

Variables	Village sets		
	W. Nampula	Monapo	Montepuez
Agroforestry trees as important evidence (%)	86	93	90
Average number of trees per household	25	39	3
Possess trees (%)	59	69	16
Trees provide a 'guarantee' of not losing land (%)	99	99	94

Between village set average values are significantly different at the 0.05 level between all three village sets for "Average number of trees per household;" and for "Agroforestry trees as important evidence" for the W. Nampula and Monapo sites; and for "Possess trees" between Montepuez and the other two sites. Source, Unruh 1997.

Table 3. State administration and village rankings of evidence. Values are percent of samples categorizing evidence as very important, important, not important, and very unimportant. Source Nixon (2004)

	Key Persons Admin (n = 101, data in percent)				Emera village, (confict) (n = 31, data in percent)				Manatuto village, (less conflict) (n = 30, data in percent)			
Form of Evidence	Very import	Import	Not import	Very Unimport	Very import	Import	Not import	Very Unimport	Very import	Import	Not import	Very Unimport
Trees planted on the land	51	45	4	0	23	65	13	0	43	57	0	0
Terraces	44	51	5	0	10	58	32	0	7	77	17	0
Irrigation systems	33	47	18	2	10	55	35	0	20	73	7	0
Houses and buildings	30	52	18	0	23	61	13	3	30	60	10	0
Clearing land from forest	20	38	40	1	16	23	61	0	3	70	27	0
Fences	25	57	17	1	29	52	16	3	43	50	7	0
Rock markers	33	50	15	2	26	55	16	3	27	63	10	0
Paths	24	37	35	5	13	45	42	0	0	57	40	3
Divisions around rice fields	23	50	26	1	23	52	23	3	7	87	7	0
Oral accounts of Katuas, supporting traditional claims	48	43	8	1	39	52	10	0	60	33	7	0
Oral accounts of other witnesses	39	44	16	0	19	39	32	10	47	20	30	3
Inheritance claims	43	49	6	2	13	42	42	3	23	67	10	0
Allocation by traditional leaders	30	53	15	2	35	52	13	0	50	43	7	0
Formal certificate issued by government department	42	40	14	3	13	71	16	0	57	40	3	0
Long term use of previously uncultivated land	22	38	13	27	10	29	58	3	10	60	27	3
Medium/short-term occupation	9	30	53	9	0	13	77	10	10	23	50	17
Agricultural lease issued by government department	18	38	42	1	0	42	39	19	10	47	37	7

Indonesian letter of recommendation for land ownership	16	37	43	4	10	48	39	3	7	63	23	7
Receipt of tax payment	20	49	29	2	16	35	42	6	0	67	30	3