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Trees and spaces as emotion and norm laden components of local ecosystems in Nyamaropa communal land, Nyanga District, Zimbabwe

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Abstract. This study explored local controls relating to trees and spaces of the local environment in Nyamaropa Communal Lands in the Nyanga District of eastern Zimbabwe. Controls were considered in a broad and inclusive framework encompassing codified rules, taboos, and, regulatory norms and emotions. Special emphasis was laid on people's emotional and ethical investment in the above components of the environment – trees and spaces. The study employed intensive informal and group interviews. Results show that there is tremendous emotional and ethical investment in trees and spaces of the environment in Nyamaropa. Emotions come in a variety of forms: fear, shunning, love, reverence, and confidence and security enhancement. The emotional and ethical norms are designed to govern behavior and the context of resource utilization. These norms have implications on the organization of spaces of the local environment and regimes of resource utilization occurring in them. Location of resources in spaces of the environment has implications on the management of resources within them. The domains of human habitation – home bases and home fields – were found to be the most emotionally laden spaces with trees in them being actively planted, nurtured, conserved, eliminated, or destroyed on the basis of certain emotions and norms. The findings of the study have implications within the framework of decentralization and of democratization of natural resource management.

Key words: Trees, Spaces, Controls, Sympathetic visions, Emancipatory visions, Decentralization

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> Cognitive psychologists often differentiate between cool and hot cognition. The first is logical, rational and unemotional thought. Mistakes of cool cognition involve miscalculation and plain foolishness. Hot cognition is emotion driven. Mistakes of hot cognition are mistakes of passion, desire, love and hate. For a while there was hope that many of our mistakes were of the "cool" type but of late psychologists have generally agreed that emotion and mood profoundly influence all our thoughts.
>
> A. N. Anderson, *Ecologies of the Heart: Emotion, Belief and the Environment* (1996)

Introduction

People do not live in ignorance about the world around them. They see their environment and feel and think about it and in the process derive mental images (ideas) about it (Zimmerman, 1951). The felt, perceived, and thought (cognitized) texts that people hold influence their actions and the way they interact with the environment. Understanding the meaning of texts of social action with respect to the environment has been part of the intellectual enterprise since time immemorial. Historically, the logico-deductive rules of conventional scientific inquiry have been used to understand the rationale behind people's actions and beliefs in a wide range of contexts. However, meaning is relational, since it can only be evaluated within a certain framework of meaningfulness. Empirical science itself is situated in a set of values and beliefs that are themselves not necessarily of universal significance – being rooted in the industrial revolution of 17th century Europe (Swift, 1979). Reductionist science is thus laden with Eurocentric values and assumptions. One of its major empirical assumptions is that humans are

immensely rational – or errorless maximizers of individual utility (Smith, 1937; Hardin, 1968). Implicitly, this means that social action can only be considered sensible if it is rational and logical – "cool cognition" (Anderson, 1996: excerpted upfront).

Universalization of this set of thinking ran in tandem with colonial conquest and was part of the broader process of the subjugation of indigenous communities in colonial territories (henceforth referred to as local communities) (Phimister, 1988). Such visions were largely popularized by early missionaries[1] and explorers and later by colonial pioneers whose evangelical and political missions perpetuated European stereotypes (Beinart, 1984; Thrupp, 1989; Drinkwater, 1994). These missions also required a good grounding on how native minds worked. However, local actions and practices were and are driven by completely different sets of values and assumptions that are consistently undervalued and marginalized by reductionist approaches of inquiry (Chandrakanth and Romm, 1991). For instance, the practitioners of conventional science dismiss local beliefs with contempt when the empirical "sense toolkit" fails to find the essence of the beliefs. At best, local beliefs are seen as being prerational (irrational), illogical, and senseless beliefs of non-knowers that are best left to local designs. Shiva (1987: 244) aptly sums the compartmentalizing nature of reductionist approaches and the way they trivialize those who are not fortunate enough to be in the "know":

> Reductionist science partitions people into experts and non-experts or non knowers . . . even in those areas of life in which the responsibility of practice and action rests with them. . . . But even the expert is not spared – fragmentation of knowledge converts the expert into a non-knower in fields of knowledge other than that of his/her specialization.

Shiva (1987) refers to such divisive tendencies as the violence of reductionist science.

Worse forms of violence to local cultures and livelihoods are also known and usually come as part of efforts to develop (modernize) local livelihoods. Often, local beliefs are conceived as being pagan hindrances to development, needing to be replaced if progress is to be made (Matowanyika, 1994). This thinking justifies the prescription of "development" interventions that are largely top-down in nature and that arise from means-ends (project-based) planning processes. Being reductionist, such projects are based on narrow (and often faulty) technical foundations. Though targeted for achieving high productivity the projects often achieve low productivity in the context of diverse outputs and benefits and this can result in disruption of local livelihood systems (Page and Page, 1991). With regards to social forestry, ecological and socio-economic audits of rural eucalypt woodlots planted as part of official strategies to ameliorate deforestation in India and Zimbabwe reflect little or no real, and at times, negative benefits (Shiva, 1987; Dewees, 1987; Mandondo, 1993).

Visions that are more benign to local beliefs are not without their shortcomings despite their being more in phase with local realities. They fall into two major categories: the sympathetic and the emancipatory. The first view recognizes that the knowledge of local societies is often experiential and may embody material of scientific and technical merit (Richards, 1979). The pursuit becomes that of identifying and sorting[2] the information into existing bodies of scientific knowledge and conceptualizing internally-oriented, and hence "more appropriate" development interventions (Barker, 1979; Howes and Chambers, 1979; Guha, 1990; McCorkle, 1991; Woodley, 1991). This approach has inspired democratized visions to planning local development: Farming Systems Research, sustainable development and participatory approaches to natural resource management (den Biggelaar, 1991). Local knowledge systems continue to receive increasing attention. For instance, they receive significant currency in major international conventions: The World Conservation Strategy, the Biodiversity Convention, the Desertification Convention, and the Brundtland Report (IUCN, 1980, 1991; WCED, 1987; UNEP, 1992).

The major shortcoming of the sympathetic approaches is that participation and involvement are based on the definitions and processes of external agents, usually the funders of the projects. Often there is no mutuality and the projects end up being cosmetic populist strategies (den Biggellar, 1991; Murphree, 1992; Mandondo, in prep.). Moreover, viewing the essence of parts of local beliefs through alien devices (e.g., empiricist science) is still not free from ethical dilemmas – it still reinforces the idea that some people should enjoy the monopoly of insight. Researchers may concentrate on what they feel "makes sense" in local beliefs and then condemn the inexplicable – usually emotional – residual as animism or mysticism (Fairhead, n.d.). Often, the unknown is considered as meaningless beliefs wrapped in religious language.

Views that are emancipatory to local belief systems criticize the dichotomy between what is scientific and what is useful in terms of knowledge and beliefs as decoupling local people from their contexts (Swift, 1979; Dahlberg, 1988). Emancipatory views hold that the best way to understand local beliefs is to investigate their meanings within their socio-cultural settings. This approach is largely informed by the work of early anthropologists, particularly that of Malinowski (1922, 1944, 1948).

Though the emancipatory approach is ethically valid, it has its weaknesses. One pitfall is the tendency of researchers to romanticize and over-value the ecological role of local culture and beliefs: "noble savages in har-

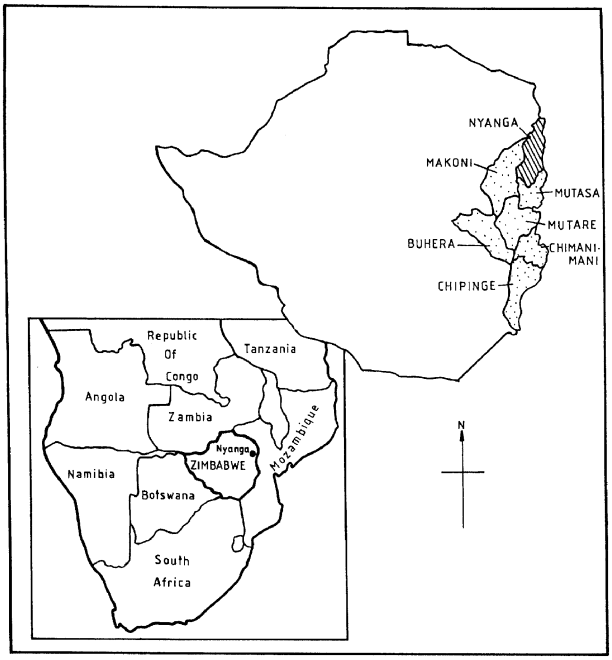
mony with nature"; "beliefs which are finely tuned to the environment"; "ritually directed ecosystems"; and, "religions which are profoundly ecological" (Rappaport, 1967, 1969; Turner, 1967; Schoffeleers, 1978; Belshaw, 1979; Thrupp, 1989). The beliefs may not solely be ecologically motivated (Mukamuri, 1995). Moreover, they may be expected to be dynamic as they are subject to contestation and negotiation. The danger, according to Drinkwater (1994), is to present local cultures as "... passive maps and not as living tradition." This study presents the beliefs in their most idyllic and romantic forms. This will form the basis upon which further studies can test the wider applicability of the beliefs.

Objectives of the study

This study investigates the scope for participatory and emancipatory approaches as frameworks for understanding aspects of local environmental regulation in the Nyamaropa Communal Lands of Nyanga District in eastern Zimbabwe – their weaknesses being borne in mind. Broadly, the aim was to explore local controls on trees and spaces of the local environment. Controls were taken in a broad and inclusive framework encompassing codified rules, taboos, and regulatory norms and emotions. Special emphasis was laid on emotional and normative controls. The study sought to explore the extent of emotional and ethical investment in the trees and spaces. The nature of the emotions and norms and their weighting across different tree species and spaces, as well as the reasons underlying the emotions, were investigated. Also under consideration was the influence of the beliefs on the organization of spaces of the environment and consequent implications on management of trees. Space can be viewed as a resource as its allocation and management are part of human ecology (Anderson, 1996). The decision to focus on space as a resource was based on the assumption that local people see different parts of their landscape in particular ways. A preliminary study (Matowanyika, 1991), suggested that local beliefs were still quite vibrant in the area selected for this study.

Study area

The study was conducted in Nyamaropa Communal Area, which is in Nyanga, a district lying along Zimbabwe's eastern border with Mozambique (Map 1). A wedge of highland (the Nyanga Plateau), mostly above 2,000 m and spanning the central parts of the district, dominates the relief of the district. The Nyanga Plateau is bounded by two valleys, a wide one to the west and a narrower one



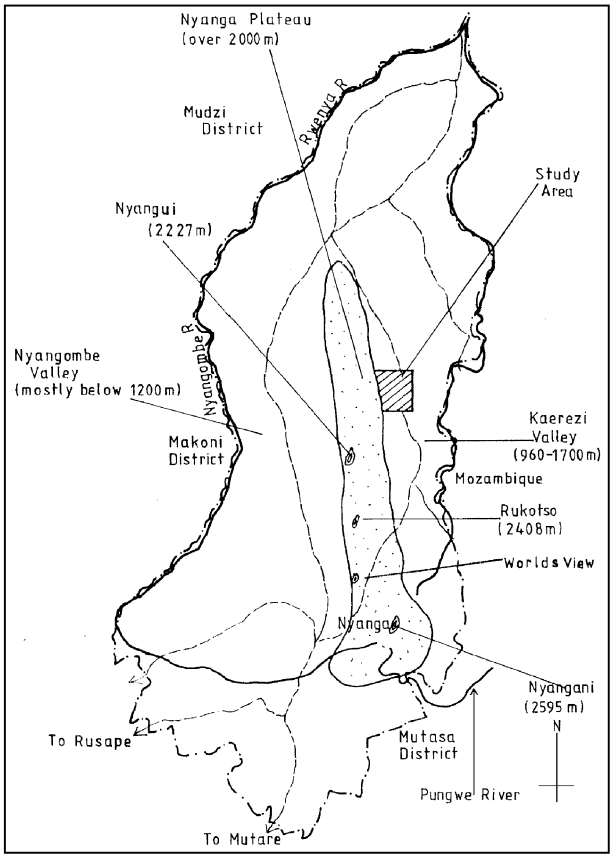
Map 1. The location of Nyanga District in Zimbabwe.

to the east. The study area, which comprises 110 km^2 of land centered on 32°53′ east and 17°52′ south, is located in the eastern valley (Map 2). The area is characterized by broken country interspaced with narrow to relatively wide valleys.

Nyamaropa experiences a tropical savanna climate; strong seasonality (wet summer and dry winter) with constantly high temperatures (Goldstein and Sarmiento, 1985; Walker, 1985). Mean annual temperatures range around 20–22 °C, with October being the hottest month (mean maximum of 27 °C) and July the coldest month (mean maximum falls to 17 °C) (Brinn, 1987). The area lies in Natural Region IIb, an agro-ecological zone marking the limits of the dryland cropping zone, receiving mean annual rainfall of 600–800 mm (Vincent and Thomas, 1960).

Nyamaropa mainly lies on a Basement Complex matrix of granites with considerable intrusions of dolerite sills and dikes (Stagman, 1978). Nutrient-poor soils of granitic origin cover much of the area (Grant, 1976; Brinn, 1987), and these are mainly used for dryland cropping (mostly maize for subsistence) by the local peasants (Agritex, 1987), The vegetation of the area, mainly comprises of miombo woodlands on mountain and hill slopes and *Terminalia-Combretum* vegetation in the lowlands – with both components reflecting considerable human influence.

The population density based on the 1992 census was approximately 22 persons/km^2 (Central Statistical Office,



Map 2. The location of the study area, Nyamaropa within Nyanga District.

1992). Much of the settlement is confined to a band of land between the 1,040 to the 1,100 m contours – this coincides with foot slopes of local hills and mountains (Surveyor General, 1985). This pattern of settlement is mainly a result of landuse planning interventions conducted in communal areas of the country under the Land Husbandry Act of 1951 (Beinart, 1984; Phimister, 1988; McGregor, 1989).

The indigenous people of the area are part of the Shona, and fall under a variety of clans (Beach, 1980; Gelfand, 1974). The largest of these groups is the Unyama clan of the **mheta** (python) totem under Chief Sawunyama. This apical clan of longest known residence in the area has overall secular and religious (ritual) power and it exists side by side with a number of clans who arrived in the area after the Unyama clan. Among the latter are the Sakarombe and the Sanyatwe clans of the **shumba** (lion) totem who were moved into the area after being evicted from the well-watered southern parts of the district. This occurred during the colonial alienation of land in the 1940s and 1950s (Matowanyika, 1991). Social structures of incoming clans remained intact as they were settled separately in distinct areas of Nyamaropa. Some portions of Nyamaropa had to be cleared (by colonial administrators) of original settlers to create space for the in-migrants. The in-migrant clans therefore exercise secular and religious power in their own areas but at a broader scale they fall under the spiritual and political domain of the Sawunyama clan. There is co-habitation in some areas, especially where the old groups refused to make way for the in-coming groups.

Methods

The study began with the concept of physical space as a "neutral container" and with time worked towards its geographical, social, political, and economic construction. Spaces are biophysical in that they consist of materials and objects. They are social in that they are lived in, they are economic in that they are depended upon for livelihood, and they are political in that they are struggled over. Although there are multidimensional axes upon which the concept of space can be constructed (Rocheleau, 1992; Watts, 1992), the emphasis in this study was on the social, in particular the emotional and normative (ethical) construction of space. The concept of space, as used in this study, is broad, not only referring to physical ground but also certain features, e.g., pools, hilltops, natural water springs, and tree assemblages.

The study relied on informal and group interviews, covering five villages, to investigate a variety of controls (especially emotional and ethical) on trees and spaces of the environment. Although efforts had been made to secure gender, socio-economic and political balance in the group interviews, actual sessions were based on *de facto* attendance. Five group interviews were held, one in each of the villages. In each case, sessions included groups of 18–39 people consisting of varying numbers of men and women. Assuming that each participant represented a household, group interviews involved a sample of 140 households out of the total of 476 households in the area recorded on lists compiled during preliminary activities. Key informant interviews included six people in each village. The composition of key informants depended on availability of the informants in each village. Informants interviewed included political leaders (e.g., chiefs and headmen), religious leaders (spirit mediums and rainmakers), medicinemen, mid-wives, and ordinary men and women. Overall, informal and group interviews involved a total of 170 people. Assuming a household size of 4 people per household and a population growth rate of 3.6 percent per annum (CSO, 1992), this represents a sample of 8 percent of the extrapolated population of the area.

At this point the extent of my immersion as both an insider through upbringing – (the study area is about 50 km from my rural home) and outsider (through professional

conditioning) should be noted, since this inevitably influences my perceptions. To provide a counter-balance, other critical and divergent points of view have been included wherever possible.

Results

Influence of cultural beliefs on the organization of local spaces

Belief in spirits and the spirit world recorded in this study are part of wider Shona beliefs and have been reported in other studies (Gelfand, 1973, 1974, 1977; Bourdillon, 1979, 1987). Local culture has strong beliefs in life after death. Results of the study suggest intimate linkages between local people and the spirits of the ancestors and these linkages extend to the organization of spaces in the local environment.

Burial places as a sacred category of spaces of the environment

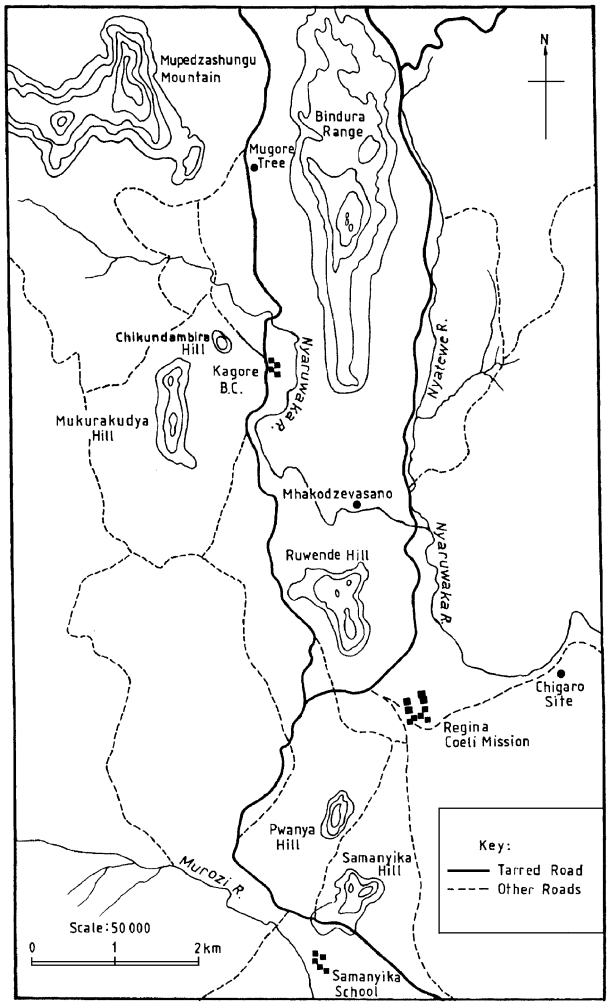
According to local belief, people do not die to perish, but they become part of the spirit world. The spirit world itself is not taken as an abstract entity that is external to the human world. Spirits are held to be alive and to exercise tutelary powers over the living. Death is believed to be transformation from flesh to spirit – with the dead person being referred to as spirit (**mudzimu** or **mweya**) and the burial process taken as preserving the spirit (**kuchengeta mudzimu**). Because of their status as spaces where the dead, who become the spirits, are kept, all burial places in the local environment are held to be sacred. No resource extraction is allowed in such areas. Extracting resources from such areas constitutes desecration of their sacral significance and it may attract both secular (political) and religious censure. Every member of the community has a duty to report those who desecrate burial places to local political leaders. Transgressors are considered to be burdens or liabilities (**mutoro**) not only to the chief but also to the spirits and to society at large. Sanctions dispensed against culprits are graded – varying according to the gravity of the offense. Reparatory ceremonies and ejection of miscreants from the society are the major forms of punishment. The reparatory ritual is an "admission of guilt" type of ritual in which the transgressor brews beer and offers a libation of blood (usually goats) to the ancestors at a public ceremony at the chief's place, thus purging himself of his guilt in the process.[3] Banishment of non-conformers from the society is the severest and most extreme form of punishment invoked against habitual offenders. Although there is scope for evading political censure by fellow human beings, locals believe that the spirits cannot be evaded. They are held to constitute a universal watchdog maintaining an omnipresent vigil over the affairs of the living. Once angered, the spirits are believed to unleash divine visitations (misfortunes) upon those who trifle with the rules of the land.

The organization of burial spaces in the landscape is strongly influenced by the social structure, which is hierarchical. In general, the family or household can be considered as the smallest social unit. A household exists within a village (**musha**) – usually organized as patrilineal clans under the village elder (**samusha**). Several of the villages constitute a **dunhu**, which is under the headman (**sadunhu** or **sabhuku**), and these in turn constitute the chiefdom (**nyika**) under a chief **(mambo**). Chiefs often create sub-chiefly institutions (**makotsi**) to devolve authority and prevent insurgency in cases where their territories are large.

Although there are many burial places in the local environment their sizes and sacredness may vary from area to area. Burial places of apical clans are more expansive and are considered to be very sacred. Those for lower units, e.g., villages and **dunhu** are much smaller and their sacredness is of localized significance.

(a) *Burial places for the ruling elites*. When chiefs and other ruling elites die, their spirits are thought to join those of the founding spirits, who are considered to be the real custodians of the land. The founding spirits are considered to be living, and burial places are held to be their abodes, hence their sacredness. The study found two sites that are accorded wider significance as burial places for local rulers. The first is Pwanya Hill, a conical shaped granitic feature lying in the south east part of the study area (Map 3). The average contour of its lower point of inflection is 1,100 m. Based on the contour circle, Pwanya hill has a base area of approximately 10 hectares. Much of the hill is covered by miombo woodland, which is sparse on the eastern slopes and dense on the west.

Pwanya hill presents a unique setup in terms of its political history and social geography. It is the burial place for an original settler sub-chiefly group (**kotsi**) of the Sawunyama clan. At present, this sub-chiefdom has cleaved into two rival sub-groups – the Samanyika and Mhiripiri lineages – each claiming legitimacy to the control of the shrine.[4] Pwanya hill grades into lowlands which are occupied by the Ruwende and Mawadza clans on its eastern and northern sides, respectively. Both these are in-migrant tribes who were moved into the area during colonial land alienation in the 1950s. Also of particular importance is the proximity of the shrine (about 1 km) to Regina Coeli Mission, a Roman Catholic institution established in early 1960s. The liturgical mandate of early missionaries often entailed suppressing local beliefs as pagan practice (Drinkwater, 1994).



Map 3. Part of Nyamaropa Communal Land that was covered by the study.

The second particularly important burial place is Mukurakudya Hill. It is an elongated hill of about 200 ha in the Kagore area (Map 3). Mukurakudya hill is covered by dense miombo woodland. In terms of social geography, it presents a slightly different picture from Pwanya hill. Mukurakudya hill is a burial shrine for the original-settler Mukurakudya clan, which remained in an area in which in-migrant tribes (Mutsikamahwe and Shamwarira) were settled. The hill does not lie in the area under the Mukurakudya jurisdiction, but in areas that are under the headmanship of the two in-migrant tribes. Also of importance is the fact that the Mukurakudya clan does not share the same totem with the apical elites (Sawunyama) of the area. The Mukurakudya clan is of the **nhewa** (leopard) totem, more related to the Tangwena, a chiefdom to the south-east of the study area.

(b) *Burial places for commoners*. Burial places for ordinary villagers are smaller and consist of groves of about 100 m^2 on the average. Burial groves stand out as distinct islands of dense vegetation with mature specimens of trees in the more deforested areas of the landscape. Men and women and the young and old are buried in different ecological locations as also recorded in a study done in another part of Nyanga district (Matowanyika and Mandondo, 1994). Dryland sites, usually those close to places with abundant supplies of loose stones (for burial), are used for the burial of adults of either gender. Mothers who die as a result of birth complications are buried in riverine areas, while infants are buried in areas that have shallow water tables including those that experience seasonal waterlogging. In the post-birth period, women are called **vangozva** and their physiological status is considered "weak or thin" (**vangozva vatete**). Infants are also considered weak. Though weak in person, the spirits of such women and babies are considered to be "hot" and they have to be buried in moist patches of the environment to "cool" them. Their spirits are believed to become nuisance spirits (**zvipunha** or **mazemiti**), which may haunt the living.

Spaces for the spirits, their hosts and messengers

According to local beliefs, spirits are very much part of the human systems, among which they have living hosts or representatives – spirit mediums (**masvikiro**). The **svikiro** is an intermediate institution between the humans and their spirits. It provides the channel through which the spirits direct proper relations among the living or for people to articulate their needs to the spirits. Besides having human hosts, the spirits can also have hosts or messengers among other components of the ecosystem: lions, pythons, and bateleur eagles. Because of their status as hosts and messengers of the spirits, these organisms are not referred to by their simple biological names. They are given names of reverence to symbolize their spiritual importance and these names are encoded into local language. The lion is not simply referred to as **shumba**. It becomes the **mhondoro** (lion spirit) – the most eminent of ritual symbols. The bateleur eagle is believed to play host to the spirit of the Queen Mother of a popular ruler (**Mushande**) of the area in bygone times. Any bateleur eagle seen in the area is regarded as **Mbuya Mushande** (Grandmother Mushande) touring the area to assert her presence and to keep a close eye on the activities of the living. The spirits can also use certain flora or floral assemblages as their hosts. For instance, *Afzelia quanzensis* (**mugoriwondo**) is believed to play host to rain spirits while *Ficus capensis* (**muonde**) and *Cusonia spicatus* (**mushenje**) play host to hunter spirits. Local custom requires that they be protected because of these ritual associations.

Belief in spirits and their hosts and messengers has further implications for the organization of the spaces of the local environment. The spirits and organisms with ritual associations are believed to be alive and are believed to rely on the environment for their sustenance. The role of burial places as the domiciles of the spirits has already been outlined. Lion spirits (**mhondoro**) are believed to conduct nocturnal tours over their dominions, but they just do not wander aimlessly. There are specially designated routes that they are believed to follow within the local environment. Paths along which they are believed to cross rivers are called **mazambuko emhondoro**, pools from which they drink when thirsty are referred to as **madziva emhondoro** and passes through which they cross mountain ranges are **nhimbura**. When they are tired they are believed to rest in specially designated areas (**zvigaro**-seats) in the local environment. Most resting places are prominent hills and knolls in the landscape (**tukomo twemhonda**), lofty vantages from which the spirits can command a good view of surrounding areas in order to assert their omnipotence and omnipresence. Although these spaces are considered sacred, they are not held to be as sacred as the dwelling places of the spirits where human presence is prohibited. Their use is usually restricted to sanctioned ritual visits only. Although they are less sacred, resource extraction from them is prohibited or if allowed is restricted by a battery of taboos and norms that govern the conduct of extraction. For instance, people are limited to catching two fish only from the pools of the lion spirits. If one overharvests, one risks incurring the wrath of the spirits and suffering some misfortune. At times, these controls are reinforced by political sanctions.

Specific examples of spaces believed to be used by lion spirits in the study area include the following: A trail running across Bingura range to the Mugore tree and then extending to the north of Mupedzashungu Mountain is believed to be the path along which lion spirits move to Muozi Mountain farther to the west of the study area. Matowanyika and Mandondo (1994) found that Mount Muozi is the most sacred mountain in the Sawunyama chiefdom. A site close to the confluence of the Nyaruwaka and Nyatewe rivers has a sacred pool from which lion spirits are believed to drink; and, a place called Chigaro, 1 km east of Regina Coeli Mission, is believed to be a resting place of lion spirits.

Sites for propitiating the spirits

Besides being provided with spaces for their sustenance within the local environment, spirits need to be propitiated. Propitiation can be done for several reasons: thanking spirits for their benevolence, imploring the spirits for blessings, or invoking their intervention in times of misfortune. There are specially designated places in the local landscape where some of these rituals can be conducted. Those of greatest ritual eminence are sites for rain ceremonies. Secular and religious controls outlined earlier (e.g., reparatory sanctions), prohibit resource extraction from sites where rain ceremonies are conducted. In the study area, the most sacred rain site (**maganzvo**) is Nyamubarawanda Mountain. It is the place where the **svikiro** (spirit medium) of the area resides. Lower levels of the local political structure (e.g., headman areas) have their own sites, but again these tend to be of localized significance. Even smaller social units, for example villages and households, also have their own sites for propitiation to lineage spirits, but these tend to be much smaller and localized. Often, ritual sites for households or villages are mature specimens of trees in the landscape. The commonest among such species are *Ficus capensis* (**muonde**), *Ficus sycamorus* (**mutsvita**) and *Ficus burkei* (**musamvi**).

Ritual sisters' pools

Among ruling elites, the power to communicate between the living and departed members (spirits) of the clan often resides in ritual daughters of the clan. Because of their ritual importance, these women usually do not get married, as they are the sisters of the home (**tete wemusha**). During propitiation ceremonies, the ritual sisters are the ones who have the powers to go into trance (**kubudirwa**). During the trance, a spirit of some clan ancestor enters the ritual sister and talks through her for the benefit of the living. Ritual sisters are therefore very powerful and they are believed to nurture their supernatural prowess by bathing in a sacred pool that imbues them with their esoteric powers. One such sacred pool is Mhakodzevasano – ritual sisters' pool along the Nyaruwaka river. Its ritual significance has also been reported in an earlier study done in the area (Matowanyika, 1991).

Springs created by the ancestors

Some sources of potable water in the local environment are believed to have been created by ancestors who are purported to have had powers of creating water (**kusika mvura**). Chief among these are springs located on higher ground. The springs are not necessarily considered sacred, but a range of sanitary and preservationist norms make them a unique category of space in the local environment. Sanitary norms, emotions, and political controls prohibit the washing of kitchen utensils at the springs. The controls also prohibit the felling of certain tree species such as *Syzygium guineense* (**mukute**) and *Ficus capensis* (**muonde**) around the springs, as it is believed that this will cause the water to go away (**mvura inotama**). Breaking these norms is at the risk of social ostracism and political and religious censure. Water from the springs of

ancestors is reputed to be much cooler and tastier than river water or water from mechanically-drilled boreholes. One such popular spring in the study area is the Chisoma spring (**tsime rekwa Chisoma**).

Ethical controls on some spaces of the local environment
Although not necessarily sacred, some spaces of the local environment were noted to be under ethical controls. Among these sites are sources of major rivers and all riparian environments. Local norms are against the cutting of trees believed to be of hydrological importance (stabilizing the water table) from such areas. Among the trees are *Syzygium guineense*, *Syzygium cordatum*, *Ficus capensis and Salix subserrata* (**musambangena**).

A variety of trees grow within the spaces outlined above. Space and tree-based controls may or may not be mutually exclusive. The next sections outline controls that relate to particular species in Nyamaropa.

Species-specific controls for trees in the local environment

Results of this study show that trees may or may not be nurtured, protected, destroyed, or utilized for a variety of reasons. Most of the reasons have an emotional basis: reverence, shunning, hate, and love. There are also political and ethical controls on trees and these influence how people interact with them. These controls are considered below.

Species that are shunned or feared
(a) *Cast evil spirits*. Some locals believe that a cleansing ritual should be done when the home is under the spell of some evil force. The ritual involves transferring the malevolent spirit from the homestead to some particular object – usually certain tree species – in the local environment. One such tree species is *Gardenia globiflora* (**mutarara**). Exorcism is a secret ritual that is conducted under the guidance of a trusted medicine-man and is usually performed at night.[5] Because the rite is conducted in secrecy, society does not get to know which particular individual of the species has been turned into a reservoir. People maintain that they are afraid of using the species for conventional purposes (poles, fuelwood, crafts, etc.) because they fear being haunted (**kupfukirwa**) by the evil spirits or curses cast upon the trees. According to an informant to the study, harvesting the **mutarara** was not without the risk of "... taking something that will haunt one unto death (**kutora chekuenda nacho**) because one does not know what it carries." Particularly feared is an evil force causing a type of insanity brought upon victims by their enemies. The **mutarara** can be used as a reservoir into which such forces are cast. Because of this, the species is usually actively eliminated from the domains of human habitation (home bases and home fields). However, elsewhere in the woodland commons the species is simply avoided and not tampered with.[6]

(b) *Reservoirs of fighting spirits*. Belief in evil and avenging spirits is prevalent throughout the study area. One spirit, believed to be very dangerous and feared throughout the area, is the **chikwambo** (plural **zvikwambo**). The **chikwambo** was said to be a fighting spirit that one obtains from specialist medicine men. It can be used for both negative and positive ends. On the negative aspect, the **chikwambo** is often a tool through which people assert their influence – usually respect fostered through fear – in the society. On the positive side, some homesteads may use the **chikwambo** as a device to protect themselves or their property against intentional criminal abuse. Examples of abuse may include social bullying, murder of those of one's clan, adulterous affairs with one's women, and stock thefts. When the holding party is aggrieved, he uses the **chikwambo** to do the vengeance for him. Usually there is a series of mishaps in the perpetrating family until they get to a point where they agree to make amends. The **chikwambo** itself is a feared spirit that is nurtured by blood (death) from the families of one's own enemies. If it is not in use, the force should be pacified, otherwise it will cause unwanted death within the family of the holder. When not in use the force should be removed (**kusudurudza**) and be given its own home outside the owner's home. There it may lie latent until required for future use. The **muvhuyamombe** tree provides a reservoir for the **zvikwambo**. Because of its status as reservoir of such spirits, people shun cutting and putting the tree to conventional use, but at homes and in fields it is deliberately destroyed.

(c) *Charms of witches and sorcerers*. Vascular semi-parasites (*Loranthus* spp.) on trees (**gomarara**/**koma**) are believed to provide a range of potent charms that can be put to good or bad use. The vascular semi-parasite on *Brachystegia spiciformis* (**koma remusasa**) is believed to provide an evil charm that is used by witches and sorcerers. These bewitching forces use the **koma** to cast evil spells upon strategic spots of the homes of their enemies. Strategic locales or structures within a homestead include the following: kitchens, main houses, grain stores, and livestock kraals. Casting of a bewitching concoction made out of the **koma** at livestock kraals is believed to cause barrenness of the stock or massive reduction of stock-holdings due to mysterious illnesses and deaths. At home structures, these concoctions purportedly cause disease and misfortune among members of the resident family. The species is actively eliminated at the home base but elsewhere it is left undisturbed.

(d) *Divine charms for the lion spirits.* Lion spirits (**mhondoro**) are reputed to favor any **koma** on *Syzygium guineense* (**mukute**). It is believed that the spirits nurture their supernatural prowess on it. The lion spirits are reputed to climb the species at night in search of the charm. Some people indicated that they consciously avoid having the species near their home just in case the parasites develop there and the **mhondoro** come looking for it. The presence of the **mhondoro's** spoor near the home is usually taken as a bad omen. It is usually interpreted as a harbinger from the spirit world to warn the owner of the home against moral laxity or breach of ritual interdiction and social norms.

Revered tree species

(a) *Covenant species for exorcised lineage ailments* (***mhiko***). There are certain diseases that are recognized to be hereditary, descending down the lineages of certain clans. To guarantee good health to their offspring, clan elders may require that the curse be exorcised from the lineage. A special curative ritual is done in which the affliction is transferred from the "root" of the clan to a particular reservoir, usually a tree species within the local environment. A medicine man is called in to perform the ritual, transferring the victim status of the clan and conferring it upon a tree. The tree becomes a species of ritual significance to members of the cleansed clan and their offspring. A ritual agreement or "covenant" (**mhiko**) will have been established between the species and the clan. All clan members down the lineage are expected to follow a certain code of behavior in their interaction with the species on account of its significance as a reservoir of a clan ailment. Usually, such behavior includes the exemption of the species from conventional use. Generally, this entails prohibitions against getting products or specimens of the species to the homestead or use of the species as fuelwood or construction poles. Because it is revered, the species is usually not cut down during clearance for homebases or fields by members of the clan. At times, use of the species may be allowed, but with a lot of restrictions. For instance, use for construction may be allowed for structures quite far from the home base, e.g., field huts and garden poles. It was difficult to obtain information on which species is the covenant species for which clan, as this constituted strategic or classified information for clans. It is believed that if such information leaks to enemy clans, it can be used to re-cast the curse upon the clan. However, two of the species most commonly used for the **mhiko** ritual were *Ficus capensis* (**muonde**) and **mhingiro** (but the clans will be left anonymous).

(b) *Species of totemic significance*. Totemism is pervasive throughout the area, with nobody, except people of European descent at Regina Coeli Mission School, being totemless. Totemic behavior influences the way a clan interacts with objects of totemic importance (mostly animals) in the local environment. Normally, one is not expected to eat a food specimen drawn from an organism of one's totem, purportedly because one's teeth will fall out. But there are several clans whose totem is prime food in the local diet; e.g., cattle for the **moyo** or **chirandu** totem, guinea fowl for the **hanga** or **zenda** totem, pork for the **humba** totem, etc. In this case a special ritual (**kutsvuura**) is done. It involves bestowing totemic responsibilities upon a tree species. Trees do not eat meat, but they are given totemic responsibilities so that people can start enjoying meat derived from animals of their totem. In turn, clan members are expected to accord the tree or any other members of its species special respect consonant with its status as a substitute host of the clan totem. Ritual etiquette requires that no harm be done to the tree species by members of the clan. Members of the clan usually leave the trees intact at home bases and in home fields. Trees of this species in other spaces of the environment are not cut down for conventional uses. Again, people are not willing to divulge the substitute hosts of their totems, because this constitutes strategic or security information for the clan. Bewitching enemies may use the species as an entry point for throwing curses upon the clan. Where information was forthcoming, *Ficus capensis* was invariably mentioned as the ideal substitute host for clan totems.

Trees as reservoirs of benevolent guardian spirits

(a) *Hosts for spirits associated with rain rituals*. Information on tree species of importance in rain making rituals was obtained from local rain-makers. *Afzelia quanzensis* (**mugoriwondo**) is the species used not only for rain rituals but also for other rituals that involve propitiating for the bounty of the earth. Propitiating for rain is not a one-off activity. The rain ritual usually starts with the rain maker (**muchakanja**) observing a high moral code (chastity, harmonious social relations, etc.). During this incipient period, the **muchakanja** makes several trips to a **mugoriwondo** tree in the vicinity. Activities done by the **muchakanja** under the tree include stacking snuff for the ancestors (**fodya yamadzisekuru**) in a reed internode (**mutete**) and laying it at the base of the tree. This is followed by an esoteric monologue of speech or song as the **muchakanja** communicates with the spirits imploring for rain on behalf of the whole community. Eventually the sessions become even more esoteric and involve a journey by the **muchakanja** to some distant hills where the rain shrine is located. Elderly men and women carrying pots of beer for the ritual form part of the entourage. Song and dance that are part of the invocation become heightened as the party approaches the shrine.

At the shrine, all others remain behind[7] while the **muchakanja** scales up to the mouth of the cave, where he is believed to meet a python. The snake will be in a supinate position, with its white belly facing the sky. The spotless white belly is taken to symbolize the clear and cloudless sky. The duty of the rain maker is to turn the snake into the normal pronate position, so that its spotted back is exposed to the sky. The spotted back symbolizes clouds, which are supposed to be formed if the operation has been successful. Often it is not successful because the rainmaker will have breached ritual protocols somewhere along the line (e.g., flouting chastity requirements during the period). Often he is alleged to return on the way if he feels unsure about his own status and pretends that he has successfully accomplished the ritual. A successful rain invocation is supposed to involve the rain party coming down the mountains amidst showers of rain. On account of its significance as host for benevolent spirits, the **mugoriwondo** tree should not be cut, even during clearance to establish homesteads and fields. The individual *Afzelia quanzensis* used by the rain-maker is considered very sacred and no harm should be done to it.

(b) *Other species for invoking for the bounty of the earth*. Most trees within the *Ficus* genus were reported to be ideal sites for propitiation to the benevolent spirits. Among those found in the study area were: *Ficus capensis* (**muonde**), *Ficus sycamorus* (**mutsvita**), and *Ficus burkei* (**musamvi**). According to a local elderly woman, "In by-gone days hungry travelers could obtain themselves miracle meals by simply supplicating under these trees while singing special songs. Although the meals are unobtainable nowadays, the species are still recognized as the ideal ones under which rituals that involve invoking the ancestors for the bounty of the earth, e.g., harvests and hunts should be done." In the case of the hunter's invocation, some snuff is wrapped in the leaf of the tree and laid at the base of the tree while special hunters' songs are sung in praise of apical hunting spirits and their benevolence solicited. Besides the species of the *Ficus* genus, *Adansonia digitata* and *Cussonia spicatus* were also mentioned as substitute species for such invocations. Local norms require that these trees be offered respect and not be cut down unnecessarily.

Species shunned because of their cultural uses

(a) *Species usually associated with medicine men's kits*. In addition to its status as a reservoir for evil spirits *Gardenia globiflora* (**mutarara**) has another esoteric use that makes people shun the use of the species for conventional purposes. It is used as a dipstick (**munongoro**) to spoon out magical oil (**mafuta**) from the medicineman's gourd (**gona**). The device is therefore called **munongoro wegona**. Informants indicated that the tree would be the first to be destroyed if they were to clear new pieces of land for homesteads or for cultivation. Elsewhere in the landscape people simply avoid the tree and leave it undisturbed.

(b) *Antisorcery charms to protect corpses*. The *Kigelia africana* (**mubvee**) is used as an antisorcery charm to protect the corpses of dead people against witches. Witches are thought to feed on human flesh. If a grave is dug and for some reason or another the grave is left empty for the night before burial, some protective charms should be laid in the grave. The protective charms will neutralize those of the witches who come in at night to lay charms in the grave in order to enhance later access to the corpse.[8] A concoction prepared using specimens of *Kigelia africana* (**mubvee**) is left in the grave to trap the witches (**kubata varoyi**) and pacify their evil charms and hence protect the corpse (**kusuza munhu**) against the witches. Because of its specialist cultural use, people usually shun using *Kigelia africana* for conventional purposes. Again, the tree is consciously eliminated from home bases and home fields and those individuals of the tree occurring in other spaces are not harvested and brought to the home.

(c) *Trees used as grave shade and funeral wreaths*. People in the area also shun trees that have specialist uses during funerals. *Maytenus senegalensis*, (**musosawafa)** is used for making funeral wreaths and grave shade. Some people shun it even to the extent of ensuring that the tree is eliminated from within the vicinity of their homesteads. On occasions where the above tree cannot be found, some substitutes such as *Parinari curatellifolia* and *Jubernardia globiflora* can be used. However, people tend to shun the substitutes less.

(d) *Pacifiers of avenging and fighting spirits*. Instead of pacifying the **chikwambo** by finding it a home outside the owners home, the other option is to pacify it within the home. Special charms are used to pacify the chikwambo within the home, and the **rupindura** (botanical name could not be identified) provides this charm; it changes (**kupindura**) the homestead so that it is free of the powerful and all consuming force of the **chikwambo**. People shun the tree because of this use and they may destroy it because of this.

Species destroyed because they cause ill-luck

(a) *Trees that decrease the potency of protective charms*. Local culture has strong beliefs in supernatural forces. Most homes have charms (**chiri**) for protection against evil forces – curses of enemies or avenging spirits. Protective charms may be located in strategic spots of the

homestead that have already been outlined. The potency of the charms is sustained by a certain code of behavior on the part of the resident homestead. If the code is violated the charm is believed to become ineffective and the home exposed to bewitching spirits. Certain actions may be taken to prevent the weakening of protective charms. For instance, *Ochna pulcra* (**muparamhosva**) is believed to weaken most of the protective charms. Because of its incompatibility with the charms, entry of specimens of the tree into homesteads is usually restricted, which effectively puts them out of harvesting for conventional use. The tree is usually destroyed during clearance if it occurs within prospective homestead or field sites.

(b) *Ill-luck during civil arbitration*. At the lowest level, arbitration over civil matters is presided over by the headman. If no settlement is reached, the case is referred to the chief. A divinatory ritual (**mutewo**), to determine the guilty party, is often resorted to if no settlement is obtained at the chief's court. It is a very dangerous ritual in which extremely potent charms are drunk and the guilty party ends up with a swollen belly. The swollen tummy signifies the extent to which the guilty party is laden with the guilt, but this often results in fatalities. The innocent party normally vomits the concoction and this symbolizes their innocence.[9] Because of the fatalities the chief now usually requires that the parties seeking recourse to the **mutewo** ritual seek authorization from the local police camp first. *Ximenia caffra* (**munhengeni**) is used as a major component in the preparation of the **mutewo** concoction. People do not use *Ximenia* for conventional purposes because they believe that it decreases the chances of them being found innocent should circumstances demand that they undergo the ritual. Some people therefore shun tampering with the species or putting it to conventional use.

(c) *Lightning attracting species*. Some tree species are believed to have high affinities for lightning, which is a significant cause of natural death in Zimbabwe. Locals believe that lightning can be natural (divine) or due punishment from tutelary spirits for breach of divine interdiction at some level (clan) or chiefdom or it may be the work of the forces of evil. The first and second types of lightning are believed to bring little or no harm. Lightning associated with them is usually interpreted as signs through which supernatural forces express their displeasure to the living. Lightning caused by the secret malevolence of some scheming enemies is the most feared in the area. Certain actions may be taken to reduce the home's susceptibility to such attacks. For instance, *Syzygium guineense* (**mukute**) is often cleared from the vicinity of the home by some people. Enemy-induced lightning bolts are held to have a high affinity for this tree species. In some portions of the study area, *Ficus capensis* (**muonde**) and *Uapaca kirkiana* (**muzhanje**) were also believed to be lightning attractants.

(d) *Species that are incompatible with disease*. Some species are believed to be incompatible with illness. Such species are purportedly not used for conventional purposes at the homes of people who hold these beliefs. Most of the species that should not be brought to the home during illness are the ones that are brittle (**miti inechikatsu**), the symbolism being that the life of the person under illness will also snap. The following trees were mentioned as those that aggravate illness: *Anona senegalensis* (**muroro**), *Ficus burkei* (**musamvi**), and **mutsodzo**. Some people consciously eliminate these trees from their homesteads.

Species used as protective charms at homesteads

(a) *Lightning repelling tree species*. Strategies to reduce the likelihood of lightning strikes at the home extend beyond the elimination of tree species that are believed to attract lightning. Another measure involves the active planting of lightning repelling tree species at the homestead. The *Euphorbia ingens* (**muhonde**) is one such lightning repellent. Its positioning in the homestead is designed for maximum capture and subsequent deflection of the locus of the lightning bolts. Most lethal bolts of lightning are believed to traverse the skies in an east-west direction and hence the repellents are usually planted at the eastern end of the homestead. Another lightning repellent is *Myrothamnus flabellifolius* (**mufandichimuka**), a small annual herb. It is thrown into the fireplace with a combination of other charms just before the beginning of the rainy season. The fumes should spread throughout the home, thus protecting it against lightning throughout the season. To enhance security and confidence from harm, some households plant and nurture these trees in their homes.

(b) *Charms to protect strategic points of the homestead*. Points of strategic importance within the homestead have been outlined earlier. Some people bury protective charms (**chiri**) at these points to protect the home against the curses of enemies and avenging spirits. Vascular semi-parasites on *Syzygium guineense* (**mukute**) are very important for this function. Some trees in the local environment can therefore be considered to be symbols of security.

Protection of species to sustain utilitarian benefits

(a) *Medicinal plants*. Some species were mentioned to be accorded protection and only harvested in manners that did not cause permanent damage because of their medicinal importance. Plants that develop vascular

semi-parasites were believed to be of high therapeutic significance. Vascular semi-parasites on *Ficus capensis* (**gomarara** / **koma remuonde**) are acclaimed stimulants of lactogenesis and galactopoiesis (start and maintenance of lactation respectively). A concoction prepared from the **koma** is used to treat lactation malfunctions in a variety of animals: people, cattle, goats, etc. People normally protect the tree on which the parasite develops to cater for potential use in future.

The *Xeroderris stuhlmanni* (**murumanyama**) is another species that people harvest with caution. It is used as an aphrodisiac and is harvested in a manner designed to cause minimal harm. For instance, the harvesting party only notches for the tree bark from the eastern and western sides of the tree. Only enough is taken.

Some people accord certain tree species protection on account of their importance in post-natal rituals and post-natal hygiene. In the case of deliveries at home several post-natal protocols are often followed in some families. The baby is not taken out of the maternal hut soon after birth. It is kept inside to stabilize the superficial nerves (**tsinga dzendongororo**). Fuelwood from *Pterocarpus angolensis* is specifically used during this period. Its smoke is believed to accelerate the pace at which superficial nerves "mature." The baby is usually taken out of the maternal hut only after the umbilical cord has dried and fallen off (**kugutsa**) so that it can have its first experience of seeing the sun (**kuoneswa zuva**). Some people do not put this tree species to other conventional uses.

Local understanding of disease and epidemiology does not tally with that of Western science. Classification systems of socially significant diseases also differ from those of Western science. One socially significant condition, requiring proper "management" on account of the high mortality associated with it, is the hardening of the fontanelle. Under Western medicine, this is explained in terms of calcification or ossification (hardening of tissue due to accumulation of bone cells (osteoblasts) and calcium. In local epidemiology, the fontanelle is a part of the human anatomy that requires proper handling, especially during infancy. Rapid ossification is not desirable, as the child will be afflicted with chronic headaches in adulthood. Prolonged ossification is also not desirable, as the sub-fontanelle membranes can sag. Blockage of the nasal passages and interference with respiration leading to death through asphyxiation can result from the sagging of the membranes. *Pterocarpus angolensis* (**mubvamaropa**) is used to provide the charm to bring about the desired rate of ossification. But once used, a strict code of behavior should be followed to prevent exposure to the tree again in adult life. Usually use of the tree is given up by the family that used it.

(b) *Fruit trees*. Fruit trees are offered special significance and local rules require that they be not cut down. The reasoning is usually that they offer food for people and wildlife, especially during drought. Justifying the protection of wild fruit trees a local headman had this to say ". . . if people do not cut down exotic fruit trees there is no reason why they should also not cut wild fruit trees since they play the same function . . . in fact they provide unrestricted supplies of food to people and wildlife . . . travelers and wild animals cannot easily get fruits from exotic trees." A list of wild fruit trees found in the local landscape is provided (Appendix A).

(c) *Plants for repelling vermin and evil animals*. Some tree species are taken from the wild and planted around homesteads because they are believed to repel harmful and evil animals. The **mutandanyoka** is a snake repellent used against evil snakes which are believed to be the work of enemies.

Partial and gender-patterned use of some species

There are some tree species that can only be used in the men's fire at the court (**nhondwe**) of the male village elders. One such species is the **mukukuta**. The tree is believed to imbue those who warm by its fire with specialist skills in arbitration and adjudication. This wisdom is believed to be most desirable among men and hence its use in **nhondwe** fires and not in kitchen family fires. Such use purportedly causes conflicts as it leads to too many wise people in the home. Women have a subordinate status in local life and arbitration is a skill normally associated with the male gender.

Special protection of individual trees in the local landscape

(a) *The sacred mugore tree*. A "pregnant" *Borasus aethiopium* (**mugore**) tree stands out as a distinctive feature of the landscape in the Kagore area. Physically, "the tree of the swollen stem" starkly stands out from a local patch of deforested landscape. Its social status also stands in sharp contrast to the dirt road, which is a sign of modernizing tendencies, a few meters away from it. To the local communities, the **mugore** does not stand as a mere biological specimen, but it occupies a central spiritual role in their lives. The tree was supposedly planted there by the founder of the Kagore area.[10] Its pregnant stem is interpreted as symbolizing the extent to which the tree is laden with ritual forces of the founders of the area. The tree is held to be sacred and is not tampered with, although there is considerable human activity around it, with some homes less than 10 m away.

(b) *The shade of Nyamarimbira or Mwendera*. This example comes from the Tsatse area of Chief Tangwena

to the south of the study area. The legend of Nyamarimbira's tree is well known in the Tsatse area. The tree achieved consecrated status because of supernatural phenomena associated with it. It is believed that the tree grew from a branch of a *Syzygium guineense* (**mukute**) tree that Mwendera's mother had pushed into the ground to provide shade for her sleeping baby while she worked on the land at a place called Nyamarimbira. The branch regenerated and grew into a giant tree at a phenomenal rate. As it grew bigger, the tree developed a hollow structure in its stem and people could seek shelter from rain in it. The tree was believed to be consecrated by the spirits and it receives respect from the local communities on the basis of this belief.

(c) *Big trees in the local landscape*. Local custom is against harvesting mature specimens of any tree species in the local environment. Most of the mature trees in the landscape are believed to have ritual associations, mostly as resting places (**zvigaro**) for lion spirits. People avoid cutting down big trees in the landscape to avoid annoying lion spirits (**mhondoro**) who may express their wrath through mysterious visitations that entail misfortune to the offending party.

Special protection of trees with environmental services
(a) *Stabilizing the water table*. Several tree species are associated with moist patches of the local environment or areas that exhibit constant moisture regimes. According to local custom, these trees should not be cut because of their hydrological importance in stabilizing the water table and maintaining stream flow. Several accounts were given of how some very good sources of spring water dried up after tree clearance. Such clearance is normally associated with the opening up of riparian environments for gardens. Among the prime species of hydrological importance in the area are: *Syzygium guineense* (**mukute**), *Pericopsis angolensis* (**muwonya**), *Syzygium cordatum* (**muhototo**), *Ficus capensis* (**muonde**), *Ficus sycamorus* (**mutsvita**), and *Salix subserrata* (**musambangwena**). According to an elderly informant ". . . cutting these trees from riverine areas is like undressing a person and removing his/her dignity." Some tree species of hydrological significance are reputedly left in fields during clearance in order to maintain moisture levels. Among the hydrological species reportedly left in fields for this purpose are *Ficus capensis* (**muonde**), **mugoriwondo**, and **rushwindi**.

Species of agrometeorological significance
Local people read phenological changes in vegetation and use them to predict future climatic events such as season quality, start of rain season, and crop diseases accompanying impending rainy seasons. There is usually a sequence of events that is used to predict the certainty of future climatic events. In the Tsatse area, described earlier, the following sequence of events is a sure sign of the start of the rainy season: First, an individual *Brachystegia spiciformis* tree commonly referred to as Tekesa's tree (**muti waTekesa**) develops a purple flush. Second, all the individual **mutsodzo** trees bloom. Third, all the other *Brachystegia spiciformis* trees develop purple foliage. When this sequence of phenological events occurs people usually start planting the main maize crop. On account of its significance as the "time setter" (**mutemangani** or **mutemanguva**), Tekesa's tree is not cut down for conventional use.

Discussion

Ideal framework for assessing policy relevance of findings

Results suggest tremendous emotional and ethical investment in trees and spaces of the environment in Nyamaropa Communal Land. Similar scenarios are reported from other parts of the country (Mukamuri, 1995) and from other parts of the world (Turner, 1967; Gadgil and Vartak, 1976; Chandrakanth and Romm, 1991; Anderson, 1996). Under such contexts, people may base their actions and beliefs on rational as well as social and emotional factors. We may, thus, not always expect people's actions and beliefs to be rational as the duality between "science" and "tradition" may seldom be false in such situations. Policy prescriptions based on rational expectations analyses may also be expected to be often deficient and out of phase with local realities in such contexts (Berry, 1993). The findings of this study are, thus, not amenable to policy recommendations within frameworks that recognize a duality between the rational and irrational in people's actions and beliefs.

A policy recommendation in the emancipatory mode is to leave local people to their own designs regardless of the rationality or irrationality of their actions and beliefs. It is useful to note that there is a conspicuous policy inertia on natural resource management in genuinely emancipatory frameworks. This may partly be accounted for by impulses by politicians and state bureaucrats to centralize power and control (Murphree, 1992). Researchers and development agents may also be expected to be reluctant to completely relinquish incentives attendant to intervention. Such impulses partly account for the overinvestment and enormous momentum on decentralized management of natural resources, particularly in the participatory mode. Assessment of the policy implications of the findings of the study, may, thus, usefully be pursued within the context of decentralization of natural resource management. The next sections present condensed syntheses of both tree and space-related controls in Nyamaropa. The implications of the findings on decen-

tralization and initiatives to generate locally informed space and species-specific woodland policies are also outlined.

Tree-related controls: A synthesis

Certain trees in the local landscape appear to be objects of immense emotional and ethical significance in the human ecology of Nyamaropa. Emotions towards trees come in a variety of forms: fear, abhorrence, shunning, respect and confidence, and security enhancement. The emotional and ethical norms may have implications on how people interact with resources. Trees may be actively planted, nurtured and protected, or eliminated and destroyed on the basis of these emotions and ethical controls. However, the specific location of the trees in the landscape appears to have an important bearing on how people interact with a particular tree. An explanatory model is proposed on the basis of the idealized findings of this study: The domains of human habitation – home bases and home fields are the most emotionally laden spaces of the local environment in which trees may be actively conserved or destroyed. Trees that are abhorred, feared, and shunned are actively destroyed while those that are loved and revered and those that are believed to enhance security at the homestead are actively planted, nurtured, and protected. Elsewhere in the woodland commons and in other spaces of the environment, the picture appears to be slightly different with both categories of trees appearing to be left undisturbed.

Tree-related controls: Implications on decentralization

The natural resource management field has a tradition of prescription (Francis, 1990; Fairfax and Ingram, 1991) and the prescribed policies are often alien to local contexts (Page and Page, 1991). A state-local comparison of some tree-related forest policies reflects considerable discrepancies. Statutory protection of individual plant species is largely conferred on the basis of perceptions of threats believed to be endangering the species with extinction. Among the perceived threats are extraction for aesthetics and domestication, commercial exploitation, primary (subsistence) dependence, and habitat destruction (GOZ, 1991). In contrast, tree-related controls in Nyamaropa may elicit the active elimination or protection of some plant species from certain spaces of the environment. This is usually done to secure and sustain certain material and spiritual benefits. The technical justification for the protection of plant species can therefore be seen to be dichotomized between the two levels of human organization. Not surprisingly, state-local inventories of protected or protectable plant species have little or nothing in common. Disjunction exists in spite of the fact that some of the species enjoying state protection are found in the study area.

Woodland management policies may be expected to be more useful and relevant if they are customized to local contexts (Dewees, 1992; McNamara, 1993; Clarke, 1994). What is the scope for developing a locally-informed species-sensitive woodland policy in the context of Nyamaropa? Findings of the study suggest that the call for decentralized management of natural resources cannot always be made in a simplistic manner. The study recorded local controls in their most idyllic forms. Even before the wider applicability of the controls can be authenticated and more rigorously tested some constraints are evident – the idealized nature of the controls notwithstanding. Species-specific woodland controls in Nyamaropa are very complex (Appendix B). The complexity of the controls may be expected to significantly impair the scope for their abstraction into articulate and practicable policy formulations. Some features of this complexity are outlined below:

1. Actions elicited by different controls are not mutually exclusive. The multiple and independent controls are often equivocal and ambiguous.[11] This is particularly so for homestead spaces, which are subject to an overload of controls (Table 1).
2. The generic nature of some of the controls is likely to invalidate their effectiveness. For instance, the prohibition against cutting big trees is just an oblique restriction that does not spell out the specific cut-off in terms of tree size. Since the interpretation of "bigness" is left to individual discretion, multiple, contending, and self-serving interpretations are not unexpected.
3. There is a multiplicity of levels of human organization at which different controls relate: individual, family, clan, headman, and chiefdom. The multiplicity of controls may rarely be expected to be consistent and properly nuanced across the various levels of human organization. Controls recognized by lower levels of the social hierarchy may not be as amenable to policy abstraction as those for higher levels of the hierarchy. The former are of localized significance.
4. The basis of some of the controls is shrouded in secrecy. Esoterics surrounding ritual behavior constrains the compilation of an exhaustive list of tree species under certain types of controls. The range of species covered in the foregoing findings may therefore not be representative of all the species under local controls in Nyamaropa.

Space-related controls: A synthesis

Analysis of emotional and ethical investment in the landscape suggests a picture of the local environment as a mosaic of spaces in which there is differential loading

Table 1. Some aspects of the ambiguity of some species-specific controls in Nyamaropa

Species	Reasons for descruction	Reason for protection
Syzygium guineense	1. Attracts lion to spirits home 2. Lightning attractant	1. Hydrological services 2. Provides edible fruits 3. Can have big specimens in environment 4. Home-base anti-sorcery charm
Uapaca kirkiana	1. Lightning attractant	1. Provides edible fruits 2. Can have big specimens in environment
Ximenia caffra	1. Ill-luck during civil arbitration	1. Provides edible fruit
Anona senegalensis	1. Aggravates illness	1. Provides edible fruit
Ficus capensis	1. Lightning attractant	1. Hydrological services 2. Host for benevolent spirits 3. Substitute host for clan totems 4. Provides edible fruit

of emotions and normative considerations. Burial places, dwelling places for ancestral spirits, and places for propitiation to ancestors fall into a category of space that reflects heavy loading for the following emotions: fear, respect, and reverence. These emotions, in conjunction with secular controls that reinforce them, appear to put these spaces out of the sphere of influence of the living. Since no resource extraction is allowed in such areas, we may idealize them as having hard boundaries across which resources do not flow into local economies.

Another category of spaces in the local environment can be considered as common property shared with the ancestors. It includes spaces where the lion spirits walk or rest or where they drink from. There appears to be lower emotional (fear, respect, reverence) weighting in this category of space but there is considerable reinforcement by ethical considerations referred to in Fortmann and Nhira (1992) as pragmatic controls. Together the controls appear to be designed to foster a prudent harvesting ethic that guards against avaricious behavior. Such spaces of the environment could therefore be conceived as being bounded by soft boundaries that allow for regulated (restricted) flow of resources into local household economies.

There is a third category of spaces in which there is heavy weighting of controls of an ethical nature. In this category are sources of major rivers, natural water springs, and riparian ecosystems in the environment. These spaces are not necessarily sacred, but ethical controls are against the harvesting of certain tree species, particularly those of hydrological importance, from them. The boundaries of these spaces of the local environment may therefore be considered to be far softer and allowing for greater flow of resources into local economies than those outlined above.

Woodland commons are another category of spaces of the local environment. Such spaces cover a wide range of geographical locations: mountain tops, mountain slopes, vleis, hills, etc. The woodland commons are subject to little or no normative and political controls. They represent the areas where most of the resources are harvested.

Space-related controls: Implications on decentralization

In terms of scope for developing space-sensitive woodland policies, the constraint of multiplicity of levels at which the controls apply still holds. Spaces with spiritual designations may specifically relate to individuals, families, clans, headmanships, or chiefdoms. Though the levels over-arch each other, perceptions of importance may rarely be expected to be hierarchically sequenced across all levels. Incongruity and lack of nuancing may be the rule rather than the exception. Nevertheless, bigger spaces under the jurisdiction of higher levels hold greater scope for tapping into practicable space-based woodland policies. Areas under the jurisdiction of smaller units are too tiny and fragmented for abstraction into policy of wider relevance.

The way ahead

So far, beliefs have been covered in their idyllic or romantic forms. Romanticist views assume that local cultures have an unchanging group ecological or group moral conscience that is inviolable, but this is not necessarily true. Individual members of a society do not adjust passively to a social order, but they may or may not contest, negotiate, acquiesce, or adjust within the order. A high state of flux in social action is inevitable, especially in the context of radically changing political and socio-economic environments. In any case, breach of order is inevitable as ". . . all moral codes are stricter than the actual working rules of society and the actual working rules are too strict for too many people to follow" (Anderson, 1996: 90). Future work should therefore focus on the wider applicability of the foregoing idealized beliefs in Nyamaropa.

Notes

1. Anderson (1996) provides an example of a missionary dismissing Chinese traditional beliefs as "... mere chaos of childish absurdities and refined mysticism cemented together by sophistic reasonings into a system which in reality is a ridiculous caricature of science."
2. Fairhead (n.d.) considers the most extreme and utilitarian conception of any local knowledge system as regarding it as "... a lost and untranslated technical manual authored by a particular culture and published by a researcher who has acquired the script through ethnoscience and managing indigenous authorship."
3. Mukamuri holds that the holding of the ceremony at the chief's court fulfils selfish ends. It gives the chiefs the chance to whet their appetites for beer and meat.
4. Gadgil and Vartak (1976) note that sacred spaces are sources of conflict, especially in areas where immigration or cultural change lead to non-believing population segments. They maintain that the conflict is not just economic anger but deeper moral outrage.
5. Locals believe that the ritual should be conducted in secrecy so that it does not come to the attention of the bewitching party. In the case of such information leaking, bewitching parties are believed to put in place counteractive charms or curses to render the exorcisation ritual ineffective. A trusted diviner is used because some diviners are known for double standards. They make their fortunes by playing the bewitching parties and their victims against each other. This usually occurs in circumstances where both the bewitcher and the victim consult the same diviner. To guarantee sustained consultation the notorious diviner may: dispense impotent charms to the bewitcher; give impotent exorcising charms to the victim to counteract the potent charm of the bewitcher; or turn the victim into a counter-bewitcher by revealing the bewitcher to the victim.
6. The theme of distance from bewitching and evil forces is also found in Turner (1967) who notes that locals believe that evil forces have a limited range of geographical efficacy, i.e., one can guarantee immunity by being far away from them.
7. To sceptics of indigenous knowledge systems the movement of the **muchakanja** from the public to the private domain would be taken to represent a monumental deception. It would be taken to reinforce images of local belief as being based on mystified deviltries (Anderson, 1995).
8. The less superstitious informants indicated that they employ manned guards at the grave instead of using special protective charms.
9. Several people were sceptic to the **mutewo** ritual as an institution for arbitration over civil matters. Their concern was that the ritual is subject to abuse as there is no mechanism for ensuring that the magician who administers the charm does not act in cohorts with any of the sides involved in the dispute for selfish personal gain.
10. Dr. B. Sanford, an ecologist who accompanied the author on a visit to the area estimated the tree to be over 200 years old.
11. The ambiguity of local beliefs is also highlighted in Turner (1967), who refers to such ambiguity as the multivocality or polysemy of the beliefs.

Appendix A: A list of fruit trees found in Sawunyama communal lands

ChiManyika name	Botanical name
Muonde	*Ficus capensis*
Mutsvita	*Ficus sycamorus*
Musamvi	*Ficus burkei*
Mukute	*Syzygium guineense*
Muhototo	*Syzygium cordatum*
Mutunduru	*Garcinia huilensis*
Muuyu	*Adansonia digitata*
Mutohwe	*Azanza garckeana*
Munhengeni	*Ximenia caffra*
Muroro	*Anona senegalensis*
Muchakata	*Parinari curatellifolia*
Muzhanje	*Uapaca kirkiana*
Mutudza	*Flacourtia indica*
Mun'ando	*Bauhinia petersiana*
Munzviru	*Vangueria infausta*
Mutsubvu	*Vitex payos/mombassae*
Mutamba	*Strychnos madagascariensis*

Note: These should not be cut since they provide food for people and wildlife.

Appendix B: Summary table of tree-related controls in Nyamaropa

Botanical name of species	Local (chiManyika) name of species	Way species is managed in homestead and homefield areas	Emotion or norm driving management action	Reason underlying emotion and management action	Level of human organization at which the control on species applies
Adansonia digitata	**Muuyu**	Nurtured/protected	Respect/reverence	Reservoir of benevolent spirits	Generally applying in some sections of the community
Adansonia digitata	**Muuyu**	Nurtured/protected	Respect/reverence	All big trees in landscape should be preserved	Generally applying in some sections of the community
Afzelia quanzensis	**Mugoriwondo**	Nurtured/protected	Respect/reverence	Reservoir of benevolent spirits (e.g., rain spirits)	Applying for the rain-maker clan
Afzelia quanzensis (particular specimen)	**Mugoriwondo**	Nurtured/protected	Respect/reverence	Specific site for some rain-making rituals	Generally applying in some sections of the community
Anona senegalensis	**Muroro**	Actively eliminated	Feared/shunned	Aggravates any illness occurring at household concerned	Not ascertained because of esoteric nature of beliefs
Borassus aethiopium (individual specimen)	**Mugore** in Kagore area	Protected/preserved	Respect/reverence	Reservoir of guardian spirits of the Kagore area	Generally applying in some sections of the community
Brachystegia spiciformis (individuals which develop vascular semi-parasites)	**Gomarara/koma remusasa**	Actively eliminated	Feared/shunned	Used as evil charm	Not ascertained because of esoteric nature of beliefs surrounding practice
Brachystegia spiciformis (individual specimen)	**Muti waTekesa**		Respect/reverence	Of agro-meteorological significance	Whole chiefdom
Cusonia spicatus	**Mushenje**	Nurtured/protected	Respect/reverence	Reservoir of benevolent spirits (e.g., hunting)	Generally applying in some sections of the community
Euphobia ingens	**Muhonde**	Nurtured/protected	Security enhancement	Lightning repellent	Generally applying in some sections of the community
Ficus burkei	**Musamvi**	Actively destroyed	Feared/shunned	Aggravates any illness occurring at household concerned	Difficult to ascertain
Ficus capensis and *Ficus* sp. in general	**Muonde**	Nurtured/protected	Respect/loved	Convenant species (**mhiko**) Substitute hosts for clan totems Reservoir of benevolent spirits	Applying for some clans
Ficus capensis (specimens which develop vascular semi-parasites)	**Gomarara/koma remuonde**	Nurtured/protected	Loved	Medicine to stimulate lactation in livestock	Generally applying in some sections of the community
Gardenia globiflora	**Mutarara**	Actively destroyed	Feared/shunned	Used as part of a medicineman's kit Reservoirs of avenging spirits (**zvikwambo**)	Generally applying in some sections of the community
Kigelia africana	**Mubvee**	Actively destroyed	Feared/shunned	Antisorcery charm	Generally applying in some sections of the community
Maytenus senegalensis	**Musosawafa**	Actively destroyed	Feared/shunned	Used for funeral wreaths	Generally applying in some sections of the community

Appendix B (Continued)

Myrothamnus flabellifolius	**Mufandichimuka**	Nurtured/protected	Security enhancement	Lighting repellent	Generally apply in some sections of the community
Ochna pulcra	**Muparamhosva**	Actively eliminated	Feared/shunned	Causes ill-luck	Generally applying in some sections of the community
Syzygium guineense	**Mukute**	Nurtured/protected	Revered/respected/ loved	Provide wild fruit Stabilize water table	Generally applying in some sections of the community
Syzygium guineense	**Mukute**	Actively eliminated	Feared/shunned	Attracts lightning	Generally applying for some sections of the community
Syzygium guineense (specimens which develop vascular semi-parasites)	**Gormarara/koma remukute**	Actively eliminated	Feared	Attract lion spirits to homesteads	Generally applying for some sections of the community
Uapaca kirkiana	**Muzhanje**	Nurtured/protected	Loved	Provides wild fruit	Generally applying for some sections of the community
Uapaca kirkiana	**Muzhanje**	Actively eliminated	Feared	Attracts lighting	Generally applying for some sections of the community
Xeroderris stuhlmanni	**Murumanyama**	Nurtured/protected	Loved	Provides an aphrodisiac	Generally applying for some sections of the community
	Mutandanyoka	Nurtured/protected	Loved	Snake repellent	Generally applying for some sections of the community
	Mutsodzo	Actively eliminated	Feared/shunned	Aggravates illness in household concerned	Generally applying for some sections of the community
	Muvhuyamombe	Actively eliminated	Feared/shunned	Reservoir of avenging spirits (**zvikwambo**)	Generally applying for some sections of the community
	Rupindura	Actively eliminated	Feared/shunned	Charm for pacifying avenging spirits	Generally applying for some sections of the community

References

AGRITEX (1987), "Agritex crop sample survey 1986–87, Nyanga District." Harare: Government Printer.

Anderson, E. N. (1996), *Ecologies of the heart: Emotion, belief and the environment*. New York: Oxford University Press.

Barker, D. (1979), "Appropriate methodology: An example using a traditional African board game," *IDS Bulletin* 10: 37–40.

Beach, D. N. (1980), *The Shona and Zimbabwe 900–1850: An outline of Shona history*. Gweruo: Mambo Press.

Beinart, W. (1984), "Soil erosion, conservationism and ideas about development: A Southern African exploration 1900–1960," *Journal of Southern African Studies* 11: 52–83.

Belshaw, D. (1979), "Taking indigenous technology seriously: The case of intercropping techniques in East Africa," *IDS Bulletin* 10: 24–27.

Berry, S. (1993), *No condition is permanent: The social dynamics of agrarian change in sub-Saharan Africa*. Madison, WI: University of Wisconsin Press.

Bourdillon, M. F. C. (1979), "The cults of Dzivaguru and Karuva amongst the north-eastern Shona peoples," in J. M. Schoffeleers (ed.), *Guardians of the land: Essays on central African territorial cults*. Gwelo: Mambo Press.

Bourdillon, M. F. C. (1987), *The Shona peoples: An ethnography of the contemporary Shona, with special reference to their religion*. Gweru: Mambo Press.

Brinn, P. J. (1987), "Communal land physical resource inventory: Nyanga district." Harare: Chemistry and Soils Research Institute, Soils Report No. A539.

CSO, Central Statistical Office (1992), "Zimbabwe population census, 1992: Preliminary results." Harare: Central Statistical Office.

Chambers, R. (1983), *Rural development: Putting the last first*. London: Longmans.

Chandrakanth, M. G., and J. Romm (1991), "Sacred forests, secular forest policies and peoples actions," *Natural Resources Journal* 31: 741–756.

Clarke, J. (1994), "Guidelines for understanding and building on existing woodland management practices in Zimbabwe's communal areas," in *Proceedings of the Conference on "Indigenous Woodland Management."* Harare, Zimbabwe.

Dahlberg, K. A. (1988), "Ethical and value issues in international agricultural research," *Agriculture and Human Values* 5(1/2): 101–111.

den Biggelaar, C. (1991), "Indigenous agricultural knowledge systems and development," *Agriculture and Human Values* 8(1/2): 25–37.

Dewees, P. A. (1987), "Project completion report: Zimbabwe rural afforestation project." Paper prepared for the World Bank (Mimeo).

Donnelly-Roarke, P. (1994), "Dangers and opportunities: Indigenous knowledge systems and natural resource conservation," in J. Z. Z. Matowanyika, V. Garibaldi, and E. Musimwa (eds.), *Indigenous knowledge systems and natural resource management in Southern Africa* (pp. 79–84). Harare: IUCN-ROSA.

Drinkwater, M. (1994), "Knowledge, consciousness and prejudice: Adaptive agricultural research in Zambia," in I. Scoones, and J. Thompson (eds.), *Beyond farmer first: Rural people's knowledge, agricultural research and extension practice* (pp. 32–41). London: Intermediate Technology Publications.

Fairfax, S. K., and H. Ingram (1991), "No theory, No apology: A brief comment on the state of the art in natural resource policy and articles herein," *Natural Resources Journal* 30: 259–262.

Fairhead, J. (n.d.), *Indigenous technical knowledge and natural resource management in sub-Saharan Africa: A critical review*. Kent, UK: Chatham Maritime.

Francis, J. G. (1990), "Natural resources, contending theoretical perspectives and the problem of prescription: An essay," *Natural Resources Journal* 30: 263–282.

Fortmann, L., and C. Nhira (1992), "Local management of trees and woodland resources in Zimbabwe: A tenurial niche approach." Harare: Centre for Applied Social Sciences, University of Zimbabwe, CASS Occasional Paper Series.

Gadgil, M., and V. D. Vartak (1976), "The sacred groves of the western Ghats in India," *Economic Botany* 30: 152–160.

Gelfand, M. (1973), *The Genuine Shona*. Gwelo: Mambo Press.

Gelfand, M. (1974), "The Mhondoro cult among the Manyika peoples of the eastern region of Mashonaland," *NADA* 11: 64–95.

Gelfand, M. (1977), *The Spiritual Beliefs of the Shona*. Gwelo: Mambo Press.

Goldstein, G., and G. Sarmiento (1985), "Water relations of trees and grasses and their consequences for savanna vegetation," in B. H. Walker (ed.), *Determinants of tropical Savannas* (pp. 13–38). Oxford: IRL Press.

GOZ, Government of Zimbabwe (1991), "Protected species of animals and plants in Zimbabwe." A Departmental Report to the Department of National Parks and Wildlife Management, Harare, Zimbabwe.

Grant, P. M. (1976), "Peasant farming on infertile sands," *Rhodesia Science News* 10: 252–254.

Guha, R. (1990), "Towards a cross cultural environmental ethic," *Alternatives* 15: 431–447.

Hardin, G. (1968), "The tragedy of the commons," *Science* 162: 1243–1248.

Howes, M., and R. Chambers (1979), Indigenous technical knowledge: Analysis, implications and issues, *IDS Bulletin* 10(2): 5–11.

IUCN, International Union for the Conservation of Nature and Natural Resources (1980), *World conservation strategy: Living resource conservation for sustainable development*. Gland: IUCN.

IUCN (1991), *Caring for the earth: A strategy for sustainable living*. Gland: IUCN.

Malinowski, B. (1922), *Argonauts of the western Pacific*. New York: Dutton.

Malinowski, B. (1944), *A scientific theory of culture*. Raleigh: University of Carolina Press.

Malinowski, B. (1948), *Magic, science and religion*. Garden City, NY: Doubleday.

Mandondo, A. (1993), *Ownership and management and performance of* Eucalyptus camaldulensis in Murewa and Mutoko districts of Zimbabwe. Unpublished M.Sc. thesis, University of Zimbabwe.

Mandondo, A. (in prep), "Participation for sustainable management: A problematic." Harare: University of Zimbabwe: Institute of Environmental Studies.

Matowanyika, J. Z. Z. (1991), *Indigenous resource management and sustainability in rural Zimbabwe: An exploration of practices and concepts in commonlands*. Unpublished Ph.D. thesis, University of Waterloo.

Matowanyika, J. Z. Z. (1994), "What are the issues on indigenous knowledge systems in southern Africa: Some issues of relevance in linking indigenous systems to sustainable resource management in southern Africa," in J. Z. Z. Matowanyika, V. Garibaldi, and E. Musimwa (eds.), *Indigenous Knowledge Systems and Natural Resource Management in Southern Africa* (pp. 51–61). Harare: IUCN-ROSA.

Matowanyika, J. Z. Z., and A. Mandondo (1994), *In the shadow of Mount Muozi: Indigenous knowledge systems as ecological prudence in the sustainable management of a common property resource comprising terraced mountain slopes in Nyanga district of Zimbabwe*. Harare: IUCN-ROSA.

McCorkle, C. (1989), "Towards a knowledge of local knowledge and its importance for agricultural RD and E," *Agriculture and Human Values* 6(3): 4–12.

McGregor, J. (1989), "Coping with deforestation: Local strategies and state policy in Zimbabwe's communal lands." Seminar presented at Loughborough University, Department of Geography, June 14, 1989.

McNamara, K. (1993), "Key policy issues," in P. N. Bradley, and K. McNamara (eds.), *Living with trees: Policies for forestry management in Zimbabwe*. Washington, DC: World Bank, Technical Paper No. 210, 9 pp.

Mukamuri, B. B. (1995), *Making sense of forestry: A political and contextual study of forestry practices in rural Zimbabwe*. Ph.D. thesis, University of Tampere.

Murphree, M. W. (1992), "Participation or proprietorship: the central issue." Draft paper outline for discussion. WWF Workshop: People, Parks and Participation: Creating Effective Linkages, Belagio, August 24–28, 1992.

Page, S. L. J., and H. E. Page (1991), "Western hegemony over African agriculture in southern Rhodesia and its threat to continuing food security in Zimbabwe," *Agriculture and Human Values* 8(4): 3–18.

Phimister, I. (1988), *An economic and social history of Zimbabwe 1890–1948: Capital accumulation and class struggle*. London: Longman.

Rappaport, R. A. (1967), *Pigs for the ancestors: Ritual in the ecology of a New Guinea people*. New Haven, CT: Yale University Press.

Rappaport, R. A. (1969), "Regulation of environmental relations among a New Guinea people," in E. P. Vayda (ed.), *Environmental and cultural behavior* (pp. 181–201). New York: Natural History Press.

Richards, P. (1979), "Community environmental knowledge in African rural development," *IDS Bulletin* 10: 28–36.

Rocheleau, D. (1992), "Shared use of private and public property: The commons between." Draft for discussion, Graduate School of Geography, Clarke University.

Schoffeleers, J. M. (1978), *Guardians of the Land*. Gwelo: Mambo Press.

Shiva, V. (1987), "The violence of reductionist science," *Alternatives* 12: 243–261.

Smith, A. ([1776] 1937), *The wealth of nations*. New York: The Modern Library.

Stagman, J. G. (1978), "An outline of the geology of Rhodesia." Salisbury: Government Printer. Rhodesia Geological Bulletin No. 80.

Surveyor General (1985), Zimbabwe Land Classification Map (1:1 000 000). Harare: Department of the Surveyor General.

Swift, J. (1979), "Notes on traditional knowledge and rural development," *IDS Bulletin* 10: 41–43.

Thrupp, L. A. (1989), "Legitimizing local knowledge: From displacement to empowerment for third world people," *Agriculture and Human Values* 6(3): 13–24.

Turner, V. (1967), *A Forest of Symbols*. Ithaca, NY: Cornell University Press.

UNEP (1992), "Convention on Biological Diversity." Nairobi: UNEP.

Vincent, V., and R. G. Thomas (1960), *An agricultural survey of southern Rhodesia*, Part 1, *Agroecological Survey*. Salisbury: Government Printer.

Watts, W. (1992), "Space for everything: A commentary," *Journal of the Society for Cultural Anthropology* 7: 115–129.

Walker, B. H. (1985), "A general model of savanna structure and function," in B. H. Walker (ed.), *Determinants of Tropical Savannas* (pp. 1–12). Oxford: IRL Press.

WCED, World Commission on Environment and Development (1987), *Our Common Future*. Oxford: Oxford University Press.

Woodley, E. (1991), "Indigenous ecological knowledge systems and development," *Agriculture and Human Values* 8(1/2): 173–178.

Zimmerman, E. W. (1951), *World Resources and Industries*. New York: Harper.

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