

LIVING WITH ALIEN INVASIVES

The political ecology of wattle in the eastern highveld Mpumalanga, South Africa

Michelle Aitken
Haripriya Rangan
Christian A. Kull

School of Geography and Environmental Science
Monash University
Australia

Abstract. A number of Australian trees – particularly acacias ('wattles' or 'mimosas') and eucalypts – have been cultivated over large areas of South Africa for the forest industry. They have become quite controversial in recent years for their alleged impacts on water resources and native biodiversity. In post-Apartheid South Africa, government poverty alleviation policies paradoxically engage poor rural blacks to both rip out these water-hungry 'alien invasive' trees while also encouraging people to plant them in small-scale plantations as part of black economic empowerment. This paper investigates how such a paradoxical situation arises and its impacts on specific rural landscapes and livelihoods, using the case of the black wattle (*Acacia mearnsii*) in the eastern highveld of Mpumalanga province. It traces the development of competing policy discourses (environmental, forest industry, rural livelihoods) and presents a case study of their impacts on local landscapes and livelihoods.

Résumé. Un certain nombre d'arbres australiens - en particulier acacias et eucalyptus - ont été cultivés dans de vastes zones de l'Afrique du Sud pour l'industrie forestière. Au cours des dernières années, ces plantations ont été beaucoup discutées en raison de leur impact supposé sur les ressources en eau et sur la biodiversité autochtone. Dans l'ère post-apartheid, les politiques gouvernementales de lutte contre la pauvreté ont de manière paradoxale poussé les Noirs pauvres des zones rurales à se livrer à la fois à l'arrachage de ces arbres exotiques envahissants avides d'eau, tout en encourageant les gens à les planter dans de petites plantations dans le cadre de programmes d'émancipation économique de ces mêmes Noirs. Cet article étudie comment une telle situation paradoxale s'est mise en place, et quels sont ses impacts sur les paysages ruraux comme sur les moyens de subsistance campagnards en utilisant le cas de l'acacia noir (*Acacia mearnsii* De Wild.), dans le highveld de l'est de la province de Mpumalanga. Il retrace l'évolution de discours stratégiques entrant en concurrence les uns avec les autres (environnementaux, industriels forestiers, économiques paysans) et présente une étude de cas de leurs impacts sur les paysages locaux et sur les moyens de subsistance des populations locales.

Introduction

In South Africa the merging of development and environment agendas has been crucial to secure funding for ecological management in the current political context. It is difficult to justify spending on environmental projects

when images of lush people-free landscapes are contrasted with those of overcrowded communities with no access to clean drinking water. The post-apartheid government has committed itself to overcoming the unjust legacies of apartheid by prioritising policies and programs that adopt cross-departmental approaches for achieving poverty alleviation and sustainable development.

This merged approach to development and environment has played out in contradictory ways in the management of exotic plant species. Several Australian *Acacia* (also known as wattle), particularly the black wattle, are examples of exotic species considered to be highly invasive, yet profitable. The black wattle is the third most important forestry species in South Africa because of strong export markets for its tannins and pulp, and chips (Forestry, 2006). Some development interventions in South Africa promote the planting and management of wattle in small plantations as a means for increased livelihood sustainability for poor rural households. At the same time, the Working for Water (WfW) Program targets the black wattle as among the most invasive species in South Africa, and employs poor marginalised people to clear these trees from waterways (WfW, 2008). Although both these programs have been criticised in literature and in the media (Katerere 2005; Owens interview Nelspruit 2007; de Neergaard et al. 2005; Ntshona and Lahiff 2003), many still hold them up as good examples of how development and environmental management can and should be tied together (van Wilgen et al. 2002; Woodworth 2006a & b).

This article uses a political ecology framework (Robbins 2004) to explore how political discourses in South Africa regarding the wattle have produced a multiplicity of meanings and policies that produce contradictory outcomes in managing the plant at the local level. The paper argues that the complex relationships between households, community systems of resource use, wattles, and landscapes at the local level are poorly addressed by policy interventions and programs focused on controlling exotic species. It contextualises the political outcomes of discursive representations of the wattle in the local-level livelihood realities in a prime area of wattle growth in Mpumalanga province, but understudied in comparison to similar areas in KwaZulu-Natal (de Neergaard et al. 2005; Naude 1999) and Eastern Cape (Shackleton et al 2007) provinces. It shows how local modes of accessing and using wattle are both disrupted and augmented by these programs, leading to substantial confusion and anxiety amongst poor rural households regarding the future local availability of a crucial resource for subsistence and livelihood needs.

The history of Australian wattles in South Africa

'Wattle' is the common name for many species in the *Acacia* genus that are native to Australia. Australian wattles were introduced to South Africa during the mid-nineteenth century for purposes ranging from soil stabilisation, supply of fuel and timber and, in the case of the black wattle, for production of tanbark liquor for the leather industry. The lines of discourse that shape contemporary wattle management policies have their origins in the social and environmental concerns of colonial and apartheid eras.

Colonial exercise of power in South Africa was closely tied to the notion of 'improving' the land and natural resources (Crosby, 1986). During the 1850s, improvement was "firmly associated" with perceptions of "progress, civilization, and enhanced production" (Beinart 2003:98). Australian wattles such as *Acacia longifolia* (Andrews) Willd., *A. saligna* (Labill.) H.L.Wendl., *A. melanoxylon* R.Br. and *A. cyclops* A.Cunn. ex G.Don were introduced to the Cape Colony with the aim of stabilising sand dunes; their seeds were mixed with refuse and planted across the Cape flats (Shaughnessy, 1986). Black (*A. mearnsii* De Wild.), silver (*A. dealbata* Link), and green (*A. decurrens* Willd.) wattle were introduced during this period to the Colony of Natal as sources of fuel and shade for British settler farmers. They were also used to 'beautify' the land; settlers used to greener tree-filled European landscapes sought to modify the seemingly bare, treeless grasslands by planting trees that would make them feel 'at home' (Witt, 2002, Witt, 2005).

The growth of the mining industry in South Africa during the latter half of the 19th century gave rise to growing demand for timber. The mining industry required vast quantities of timber for scaffolding and shoring mine shafts. Local timber supplies were limited, and hence there was a push to experiment with setting up plantations with exotic trees such as wattles and eucalypts. Harold Witt notes that "at the turn of the previous century most of the locally harvested wood from tree plantations was utilised in the mining industry or consumed as fuel. In Natal wattle producers met much of this demand" (Witt 2002, 90). Subsequently, the black wattle was recognised for the high tannin content of its bark, which was extremely valuable for the leather industry. The first exports of black wattle tanbark began in 1886 and rapidly grew into a significant export market (Witt 2005, 5, Sim 1917).

The changes wrought by settlers on rural landscapes had a deep impact on local African populations. Witt notes that "black households were quick to adopt introduced plant types, including the Australian wattle,

which was then utilised either as a resource or as a commodity" (2005: 2). In many instances, local populations were encouraged to use wattle in order to ease the pressure on indigenous forests; special wattle plantations were established in the Transkei for the purpose of supplying building poles to local people (Sherry 1971: 191). However, the wattle may have been a mixed blessing to local communities as its introduction marked the advent of settlers engaged in commercial production of wattle, decreasing land and resource availability to local African households. The alienation of local people from the land was widespread and entrenched throughout colonial South Africa (Beinart 2002; Maddox 2002; Brown 2003; Tropp 2003).

As colonial 'improvements' to the land intensified in the late 19th century, there was growing concern over emerging environmental problems in South Africa. The dominant colonial environmental narrative held that African populations had increased due to increasing food and physical security under colonial rule, and this resulted in widespread overuse and degradation of land and natural resources (Maddox, 2002, 252). This African population-degradation narrative was used to justify timber planting policies for soil erosion, forest loss and impacts of both of these on hydrology (Tropp, 2003). However, the degradation narrative produced the first conflict over the meaning of wattle. Although there was the widely-held perception that increased tree cover protected water supplies, some foresters felt that the opposite was true. The first concerns over the impacts of plantations on water resources were raised in 1915, but it was not until the 1930s that these were widely debated in forestry circles (Dye and Versfeld, 2007, 121, Le Maitre, interview Stellenbosch 2007).

The colonial empire-centred discourse gradually transformed into a nationalist discourse following the union of South Africa in 1910. Lance van Sittert details how the re-imagining of the Cape indigenous flora as the endangered relic of the 'Cape Floral Kingdom' "provided a sense of identity for an emerging White settler nationalism and a justification for evicting the underclass from the commons" (2003: 113). The intervening years saw the growth and consolidation of this nationalist discourse which culminated in victory of the National Party in 1948 and formalisation of apartheid or 'separate development' policies in the country. Apartheid discourses of nationalism and land degradation narratives were woven together to justify the creation of reserves for conservation of native plant species and wildlife. Native vegetation and wildlife began to be valued for their 'amenity' and symbolism of nationhood.

It was during this period that the black wattle began to be seen as a problematic alien import, despite its continuing economic importance. In

1940 the Wattle Act was introduced under which the Wattle Growers Union (WGU) was established, evidence of the government's commitment to protection of the wattle industry, which, at that point, was mainly focused on tannin production. In the 1960s the tannin industry declined as leather products began to be replaced with petroleum based alternatives, and as chemically derived (chrome) tannins began to enter the market. The Wattle Growers Union (WGU) dealt with this by setting up a quota system to ensure all farmers had equal access to the limited export opportunity available to them. In addition, the Central Timber Co-operative (CTC) formed in 1970 and embarked on finding new marketing opportunities for wattle timber for private growers (Farrow and Ferguson, 1999, 14). Declining bark values meant the closure of some outlying mills, resulting in the contraction of wattle growers to the Natal midlands and northern areas. However, wattle remained an attractive investment for plantation farmers close to the remaining mills because of its dual earning potential from bark and timber.

The global narrative of population growth and environmental degradation that emerged in the 1960s had been prefigured in the 19th century debates in South Africa, but may have helped to entrench these views among scientists and policymakers in the country.

The debates over wattle as an environmental problem emerged at the same time as the Wattle Growers Union were labouring to find new markets for wattle timber and introducing quotas for bark. It is likely that without concerted lobbying by the WGU, commercial wattle production would have dwindled and its status as a weed may have been enhanced. But given the pressures of international economic sanctions on South Africa under apartheid, the wattle retained its status as a commercially important crop despite being labelled an environmental problem by scientists. By the end of apartheid in 1994, however, the wattle was firmly established politically as presenting a significant conflict of interests, requiring a high level of diplomacy between foresters and a majority of scientists; it was recognised as much a national weed as a commercial resource (Plant Protection Research Institute, unpublished files, 1979-1994).

Wattle discourses in post-apartheid South Africa

By the time the ANC-led government assumed power in 1994, three broad positions had emerged in the debate over wattles: as invasive, as commercial forestry species, and as a resource for poor rural African populations.

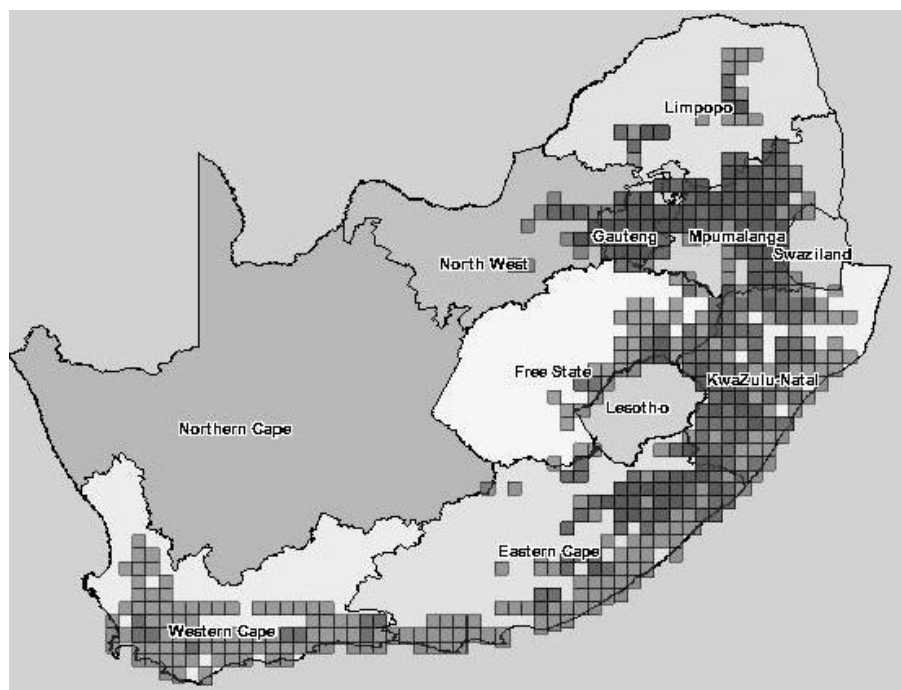


Figure 1: Combined distribution of *Acacia mearnsii*, *A. decurrens*, and *A. dealbata*. Shaded squares indicate presence of at least one plant record (squares are a quarter degree latitude/longitude in width and height). Darker squares indicate presence of two or more of the above species in same square. Source: <http://www.agis.agric.za/wip> (accessed July 2009)

Most environmental scientists regard Australian wattle species as ‘invasive’ and some of the most problematic exotic species in the country (Henderson 2001: 192; Figure 1). They are described as primary colonisers, typically establishing after an episode of disturbance, but also found in later successional stages in their native habitat (Sherry 1971). Black, silver, and green wattles are considered invasive because their ecological attributes, coupled with certain environmental features of the South African landscape, result in rapidly expanding populations. They grow quickly and produce a large amount of seed that remain viable in the soil for decades and germinate prolifically after fire (Stubbing and Schonau 1987). The resulting clusters of trees tend to alter the environmental conditions and existing ecosystem services for other species. Scientists have pointed out that the impacts of wattles on hydrological services are particularly severe. Results

published in 2000 from long-term experiments set up in 1935 to monitor water flows showed a significant decrease in surface water availability in afforested catchments (Scott et al. 2000). Additional research showed marked increases in annual evapotranspiration in areas that were afforested versus native grasslands that are seasonally dormant (Dye 2007). Scientists argue that although only 1.2% of land in South Africa is under exotic plantations, the catchments they occupy produce 53% of the mean annual stream flow and 70% of mean annual low flows for the country (Dye, 2007). Wattles and other exotic species have also been found to negatively impact on biodiversity in *fynbos* ecosystems and grasslands (Allan et. al. 1997). However, their impacts on other environmental features are assumed but not fully understood (Richardson and van Wilgen 2004; Hoffman, interview Cape Town 2007).

While wattle poses problems for water resources, it remains a significant forestry species (8.1%) after pines (53%) and eucalypts (38%). Forestry accounted for 170,000 jobs in South Africa in 2007 (Godsmark 2008), with most of these in the provinces of Mpumalanga and KwaZulu-Natal. In Mpumalanga 3.7% of formal employment is in commercial forestry, and forestry and forest products account for 2.09% of the country's GDP. A large proportion of plantation wattle is grown by medium-scale commercial farmers engaging in mixed production systems. A number of cooperatives operate mills and facilitate transport to make the economies of scale attractive to medium-sized farmers (Day, interview Piet Retief 2007).

The third set of views regarding wattle has emerged since the 1990s, focused on the wellbeing of black populations in South Africa. They point out that wattle is a tool used by many poor black people in their livelihoods (Armstrong, 1992, de Selincourt, 1992). Several scholars have shown that although wattles are regarded as invasive species that impact water resources and landuse, poor rural households use them to meet their subsistence needs and to secure a living (de Neergaard et al., 2005, McGarry et al., 2005, Naude, 1999, Shackleton et al., 2007, Tropp, 2003). They note that the livelihood activities of the rural poor encompass 'alien invasive' plant species in a variety of ways: gathering firewood from plantations and wild areas, employment in the forestry sector, fruit production in household gardens, and the establishment of plantations on community land.

The policy framework for management of wattle in South Africa attempts to address these competing perspectives. As shown in the table below, there are thirteen *Acacia* species listed as weeds or invader plants under the Conservation of Agricultural Resources Act (CARA), 1983 (Act No. 43 of 1983). All are Australian wattles. Species falling under Category 1

are considered highly invasive, and are required to be cleared from all areas. Category 2 species are deemed invasive but can exist in demarcated areas under permit. Category 3 species are also invasive and may not be planted, but plants already in existence are allowed to remain. The black wattle (*A. mearnsii*) falls under Category 2 as both an invasive weed and as a lucrative forestry species. It is the only species in Category 2 that is under medium- or large-scale commercial production. According to CARA, black wattle can only exist within commercial plantations or in small plots for meeting subsistence needs in ex-homeland areas; it is required to be eradicated in all other areas.

Category 1	Category 2	Category 3
<i>A. dealbata</i> (W. Cape)	<i>A. dealbata</i> (rest of SA)	<i>A. baileyana</i>
<i>A. implexa</i>	<i>A. cyclops</i>	<i>A. elata</i>
<i>A. longifolia</i>	<i>A. decurrens</i>	<i>A. podalyriifolia</i>
<i>A. paradoxa</i>	<i>A. mearnsii</i>	
<i>A. pycnantha</i>	<i>A. melanoxylon</i>	
	<i>A. saligna</i>	

"Source: Conservation of Agricultural Resource Act
(see www.arc.agric.za/home.asp?pid=1031; last accessed Aug. 2009)"

Table 1: Wattle species categorised as weeds in South Africa

Although the CARA attempts to address the different perspectives and interests, there remain significant inconsistencies around the treatment of wattle in densely populated ex-homeland areas where a large proportion of poor households rely on wattle as a resource. Their voices are yet to be heard in the policy arena despite being the focus of the country's development agenda. There is very little understanding of what the wattles mean to them beyond serving as a resource. As a result, policies are often implemented in ways that have unintended consequences. With regard to forestry plantations, government regulations require managers to obtain water user licenses and protect the surrounding environment by using biological agents or physical labour to remove the species. Wattle growers argue that the costs of environmental management are prohibitively expensive, and that using biological agents for controlling wattles outside poses a threat to productivity within their plantations (Day, interview Piet Retief, 2007). These inconsistencies in legislation have been heightened in the post-apartheid period, where the government's approach to development has generated new meanings for the wattle in poverty alleviation and environmental management programs.

Wattle and development in post-apartheid South Africa

Following the democratic elections in 1994, the ANC-led government espoused reconstruction and development as its main political agenda as the means for redressing past social injustices and alleviating poverty for the majority African populations in the country. The post-apartheid government's embrace of development discourse was inevitable, yet ironic. Ever since the end of World War II, 'development' emerged as the dominant discourse defining the activities of postcolonial states, and the basis on which economic assistance was institutionalised through multilateral and state development agencies (Rangan 2008). Gustavo Esteva notes that "there is nothing in modern mentality comparable to it [development] as a force guiding thought and behaviour" (1992: 8). The development discourse was used by the apartheid government to justify separatist policies and promote segregation (Crush 1995). As Tapscott points out, the post-apartheid government's espousal of development as a priority revealed a profound contradiction:

The irony in the 1990s is the way in which traditional opposition forces in South Africa are themselves appropriating the language and idioms of 'development' for their own ends. Far from shunning issues of 'development' as the province of apartheid apologists, the notion is assuming increasing importance in the rhetoric of the ANC and other organisations. Paradoxically, given the origins of the concept in South Africa, 'development' is becoming a central theme in the discourse of traditional anti-apartheid forces (1995: 191).

However, given the broader context of international development discourses of the 1990s (Adams 1995: 89), the post-apartheid government blended its discourse of development with that of environmental sustainability. Discourses of development and conservation were linked the late nineteenth and early twentieth centuries by colonial government agendas for 'progress' (Grove 1987: 36), but sustainable development represented a new way of addressing both environmental degradation and poverty alleviation.

One of the earliest post-apartheid programs that combined environment and development discourse was targeted towards eradication of 'alien invasive' plant species. The framing of exotic plants as an environmental problem is not new to South Africa. Indeed, the emergence of a global 'alien invasive' plants discourse over the past three decades or more has been shaped by the contributions of South African scientists and

combined with experiences “from other regions, particularly settler colonies” where the transformation from native to mixed native and exotic landscapes has been abrupt. As is the case with many environmental issues (Hajer 1995; Adger 2001), the ‘alien invasive’ species problem has been articulated primarily in economic terms of high costs to agricultural production or land management, and as a threat to native biodiversity. In an effort to secure funding from the post-apartheid government for environmental conservation, scientists presented the control of alien invasive plant species as an issue of sustainable development that could simultaneously address poverty alleviation. Alien invasive plants were framed as severe threats to South Africa’s biodiversity and limited water resources. Several scientists working in universities and research agencies successfully lobbied the newly-elected post-apartheid government to tackle the alien invasive species through a program called Working for Water (Director WfW, interview Cape Town 2007).

Working for Water (WfW) was established in 1995 as a public works program that employs marginalised people to clear invasive species that impact on water availability in river catchments. The program aims to provide waged work, training and education to low-skilled and unemployed populations alongside protection of South Africa’s water resources. Participants are selected on the basis of equal opportunity with respect to gender, age, and race. Those selected to participate in the program are paid a poverty relief wage of 50 Rand per day, in line with the government prescribed wage, and receive two days training each month. They also participate in programs that address HIV, childcare and pregnancies, substance abuse, malaria and tuberculosis – all of which are significant social and health problems faced by poor people in South Africa.

Working for Water has been both commended and criticised for its approach that combines environment and development goals. As the Director of WfW notes, the program has made significant progress over the past decade in reducing alien invasive species in sensitive river catchments and provided employment opportunities to poor people. However, the program has also revealed several problems with the approach, in that it does not adequately prioritise species for control or pay attention to new and emerging invasive plant species in cleared areas. The lack of prioritisation and inadequate follow up of cleared areas reduces the effectiveness of previous efforts (Preston, interview Cape Town 2007). Several researchers have also criticised the social development agenda of WfW program for clearing trees in a number of areas where local communities relied on these species as a subsistence resource (de Neergaard

et al., 2005, Naude, 1999, Shackleton et al., 2007). WfW aims to address this problem over the coming years by working with communities to establish woodlots and building their capacity to manage the areas in ways that minimise invasion (Preston, interview Cape Town 2007).

In addition to legislation such as CARA and WfW programs, the Plant Protection Resource Institute has carried out biological control research and dissemination programs since the 1960s and funding for much of its activities is sourced from WfW. However, the PPRI programs operate independently from WfW in consulting a wide range of interested actors and determining priority species for invasion control in different parts of the country (Wood, interview Stellenbosch 2007). There is, however, an interesting paradox that emerges from combining invasive species control with development agendas. Invasive species such as the black wattle have also been identified by government agencies and corporate programs as an important economic resource for promoting development in ex-homeland areas. The Department of Water Affairs and Forestry (DWAF), one of the main supporters of WfW, also works with communities with limited resource to establish small woodlots of alien invasive species (Brundyn, interview Nelspruit 2007). Large forestry companies such Sappi, Mondi and NTE have also introduced development programs aimed at black economic empowerment (BEE) that provide support for commercial cultivation of wattle and other alien invasive tree species on woodlots of less than 10 hectares. The following case study explores the contradictory outcomes of eradicating wattle from some parts of catchments while planting them in others.

A portrait of the Oshoek-Lochiel area

The case study area is located in Mpumalanga province in one of the prime areas of wattle growth, but understudied in comparison to KwaZulu-Natal and the Eastern Cape (Shackleton et al., 2007). It falls within a geographic triangle bounded by the towns of Oshoek, Lochiel and Bettysgoed on the western border of Swaziland located in the Albert-Luthuli Municipality (see figure 2). For the purposes of this study, the area is labelled Oshoek-Lochiel. The settlements surveyed include Bettysgoed in the former Duma tribal area, and Hartebeeskop, Lochiel and Oshoek in the former Enikakuyengwa tribal area.



Figure 2: The case study area, located within the Albert-Luthuli Municipality, Mpumalanga province, South Africa. Source: Google-Map data/Tele Atlas (accessed July 2009)

Oshoek-Lochiel is in a landscape known as the 'highveld', characterised by high elevation (1500m) grassland ecological communities, which are susceptible to fire (McAllister 2002). It has a rainfall of approximately 900-1000mm annually – higher than is typical for grassland biomes – and one of the reasons the area is seen to have high forestry potential (McAllister 2002; DEAT). The landscape in the area is a mosaic of grassland interspersed with plantation forestry. Currently, plantations are mainly eucalyptus and pine species, with a small percentage planted solely in wattle.

Oshoek-Lochiel falls in an area that was previously known as the homeland of KaNgwane under apartheid. It was incorporated within KaNgwane during the late 1970s, when the apartheid government removed rural African households from areas viable for commercial farming for the white population and resettled them in resource poor homelands. Prior to incorporation within KaNgwane, the Oshoek-Lochiel area comprised white-owned farms and plantations of wattle, pine, and eucalypts.

After the 1994 elections KaNgwane became part of the new Mpumalanga province. Homeland administration was dissolved and replaced by municipalities that are headed by elected councillors. The municipalities are responsible for providing services, engaging in social development, and determining land use within their jurisdiction. However, traditional (or tribal) authorities continue to exist in the post-apartheid era

and continue to control access to land and other environmental resources. In ex-homeland areas such as KaNgwane, the power dynamics between municipalities and traditional authorities tends to vary due to overlapping interests in land allocation (King 2005). The role of traditional authorities in post-apartheid South Africa is confusing because of the contradictions in the new constitution that simultaneously uphold democratically-elected institutions such as municipalities and also legitimise the presence and role of non-elected traditional authorities; in effect, homelands have been abolished, but the traditional authorities that were part of the old homeland administrations continue to exist with constitutional protection and play a role in local and regional politics. This has led to considerable confusion because of the varied levels of dissatisfaction and contestation of the role of traditional authorities across different ex-homeland communities (Levin and Mkhabela, 1997, Ntsebeza, 2000, Rangan and Gilmartin, 2002).

According to the 2001 Census, the Oshoek-Lochiel area is characterised as having low population density. However, compared to the population density of 'white' rural areas, this area is more densely populated. The four major settlements falling within our case-study area have a combined population of 12,000. Most of the population is clustered around nodes that are located on major roads. Employment opportunities are extremely limited; the majority of population in the Oshoek-Lochiel area are categorised as economically inactive. Children and elderly comprise a high proportion of the population, and most households receive some type of welfare assistance. Many households do not have electricity or access to piped water supply to their homes (Census 2001).

Wattle in the Oshoek-Lochiel landscape

When the Oshoek-Lochiel area became part of KaNgwane in the late 1970s, the administration of existing forestry plantations was handed over to the homeland administration. According to the district manager of Komatiland, a parastatal forestry company set up in the post-apartheid era, homeland authorities had little experience with management of commercial plantations. As a result, the plantations were in a poor state at the end of apartheid; yields were low, the stock run down, and wattles had spread beyond plantation areas to waterways (Bijl, interview Nelspruit 2007). The patterns of wattle distribution within plantations and along waterways are visible in the satellite images in Figure 3.

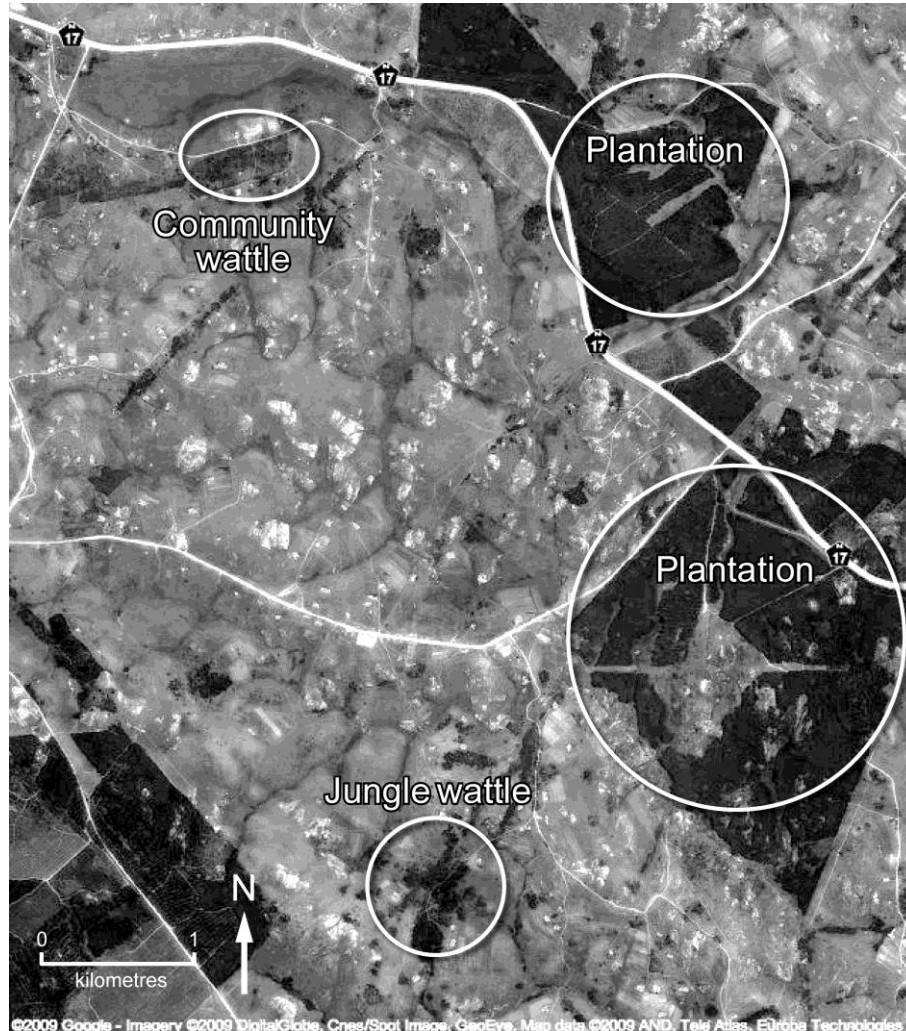


Figure 3: Satellite image of study area highlighting different kinds of wattle stands: community wattle, plantations and 'jungle' clumps. Source: Google-Map data/Tele Atlas (accessed July 2009)

Our survey shows that wattles serve as a critical resource for communities in the Oshoek-Lochiel area. Given the limited economic opportunities available, households engage in a diverse range of livelihood strategies. They combine cultivation of home gardens, raising cattle, harvesting environmental resources, permanent and temporary employment of family members both in the area and neighbouring towns, remittances,

pensions and welfare benefits. Only 20% of households surveyed reported having permanent employment. All households supplemented their resource needs by harvesting wattle from surrounding areas. Similar to findings in other areas of wattle growth in KwaZulu-Natal and Eastern Cape (Naude 1999; Madubansi and Shackleton 2007; Shackleton 2007; de Neergaard 2005), all respondents indicated that they used wattle as fuel for cooking and heating, for construction and fencing. Nearly half (46%) of the respondents stated that they used wattle bark for stomach ailments and other traditional medicinal remedies. Wattle is also used for making dishes, decorations, children's toys, ceremonial staffs, and as protection for bodies in burials. Maize is dried on frames constructed of wattle. Every respondent indicated that the wattle was absolutely critical to their well-being and that they relied on it. They used phrases such as "our lives depend on it" and "we need the wattle to live" (Field interviews 2007).

As several scholars point out, connections and feedbacks between people and landscapes are more like multi-strand webs than single cause-effect relationships (de Neergaard et al., 2005, Fairhead and Leach, 1995). The relationship between people and exotic species are often symbiotic and these, in turn, drive other social and ecological changes (Robbins 2004a; Shackleton *et al.* 2007). Studies on the impact of wattle clearance through the WfW programs show that the relationships between people and wattle not only affect the landscape but also change social behaviour (Naude 1999; de Neergaard *et al.* 2005). In Oshoek-Lochiel, people negotiate their livelihoods in the context of both local ecologies and broader institutions and political structures that impact on wattle geography. These include commercial forestry industries, programs such as Working for Water, and development initiatives aimed at black economic empowerment. Local people often leverage local institutions and social status to improve their access to emerging opportunities. We focus on some key factors that moderate people's access to wattle and how changes in access may have positive and negative effects on livelihood security for households and communities.

Access to wattle in Oshoek-Lochiel

Wattle occurs on lands that can be classified under four types of access: 1) community or commons area defined by traditional/tribal authorities; 2) 'open' access areas in and around settlements; 3) plots held by individuals or households with Permission to Occupy (PTO) from the tribal chief; and 4) commercial forestry land under government or private ownership. Each tribal authority usually sets aside a large stand near or within a settlement called 'community wattle' from which people can harvest for their

subsistence needs. Access to community wattle is not rigorously policed and subject to informal harvesting rules: people are expected to harvest larger stems, leaving the small ones to grow; they should help in pruning and thinning the stand to allow for better growth; and households may only harvest from community wattle stands in their own settlements.

Wattle in 'open' access communal areas may occur in dense clumps in hollows or along waterways. These are subject to little or no rules for harvesting. 'Wild' or 'jungle' wattle growth often resembles bamboo; stems are thin and grow close together. The quality of both community and 'open' communal wattle varies according to distance from settlements. Most people walk to harvest wattle, so stands closer to settlements may be pruned more thoroughly than those further away. The differences in quality can be seen in Figures 4 and 5.



Figure 4: Managed wattle plantation with clear understorey and straight stems (photo: M. Aitken)



Figure 5: 'Jungle' wattle growing in dense clumps (photo: M. Aitken)

The third mode of access to wattle is by obtaining a PTO from the tribal chief to fence off a plot for wattle production. The PTO may be issued for existing 'jungle' wattle stands or other plots within the tribal authority's jurisdiction for planting wattle. Once the PTO is issued and a fence is erected around the plot, access is limited to the permit holder. Not all households have equal access to obtaining PTOs for wattle stands. PTOs for wattle cultivation depend on the differing relationships between household and the chief, and the relative power and economic influence they may wield within and outside their community. Among the households surveyed, only two had fenced wattle stands near their homes for their private use. Although they spent less time harvesting wattle than other households, the trade-off of having wattle next to the house was decreased security; one household remarked that thieves could easily hide among the wattle at night. One household in Lochiel obtained a PTO from the chief for participating in an outgrower scheme established by the private forestry company, SAPPI. The head of the household was able to use his position in the community and relationship with the tribal chief to negotiate a contract with SAPPI, and had

the capital available to invest in wattle seed and cultivation according to the company's specifications (Xaba, interview Lochiel 2007). Few households in these communal areas have the capital or connections to pursue such commercial options. Hence most households in the Oshoek-Lochiel area rely on obtaining wattle for subsistence or petty sale from community stands or 'open' access areas.

Large-scale wattle plantations in the area managed by Komatiland, a parastatal company set up by the government to manage state-owned forestry lands in the region and prepare them for private ownership. In order to establish a positive relationship with local communities, Komatiland engages with tribal authorities and arranges to issue free permits for households to harvest wattle growing in the understorey in its plantations. Permits are valid for one month, and only allow harvesting for household subsistence purposes. A representative from Komatiland visits key settlements each month to issue the permits (Bijl, interview Nelspruit 2007). Households that live outside these locations find it difficult to obtain these permits; transport options are limited and most do not know when the representative might visit the main settlements. Hence, some households resort to harvesting in plantation areas without permits.

Local interactions between livelihoods, commerce, policies and ecology

Wattle forms an important source of income for households in the Oshoek-Lochiel area. A small number of people are employed as labourers in Komatiland and other private plantations. Some are employed in charcoal factory operated by a private firm called Comalco to manage kilns and pack charcoal. Some collect wattle to supply wood to small-scale charcoal makers. A large number of survey respondents indicated that they earned some income collecting headloads of wattle from community and 'open' access stands for sale as fuelwood in their localities. Those possessing a chainsaw often charge a fee for cutting wattle into pole lengths to be sold for construction or fencing purposes. Some households with modest capital hire members of the community to cut small wattle poles and deliver these to local buyers. Income from these wattle related activities varies: wages in plantations and charcoal factory are basic, and profits from sale of wattle in local markets are marginal. However, given the limited opportunities for work, these activities provide a crucial source of cash income for households.

All these wattle-based activities take place within the broader context of government regulations, policies, and development programs. Commercial outgrower schemes using PTOs are overseen by the

Department of Agriculture, and require water-user licenses from the Department of Water Affairs and Forestry. Wattle stands maintained for subsistence purposes require a 'demarcation permit' from the Department of Agriculture, and can only be established on relatively flat land far from waterways. Wattle stand without licenses or permits are legally required to be removed by the landowner or local authorities. However, given the confusing institutional roles of municipalities and traditional authorities, there is little clarity regarding the legality or otherwise of numerous wattle stands, and who bears the responsibility of removing illegal stands. The majority of people we interviewed in Oshoek-Lochiel were unaware that most of the wattle in their landscape would be categorised as illegal. Some tribal chiefs were aware of the legal requirement to clear wattle from areas not covered by permits, but stated that this was unenforceable because of the costs and difficulties associated with the process (Field interviews, 2007).

Working for Water operates in Oshoek-Lochiel. The main focus of the program in this area is to clear wattle and other exotic weedy plant species along waterways. Most of the clearing under this program has been carried out around Bettysgoed and Swallowsnest, a town located just outside the study area. In 2006, WfW collaborated with the South African Border Police to clear wattle along the border with Swaziland in order to reduce cross border theft and criminal activity. Working for Water's activity in the Oshoek-Lochiel area has had mixed impact on households in Bettysgoed. Some of the people employed by the program have benefited by gaining income and skills. However, the majority of people in Bettysgoed are now forced to purchase wattle because they can no longer harvest it from nearby locations that have been cleared by the WfW program. Figure 6 shows the location where the Bettysgoed community previously collected wattle and the newly specified location for collecting wattle after WfW clearings.

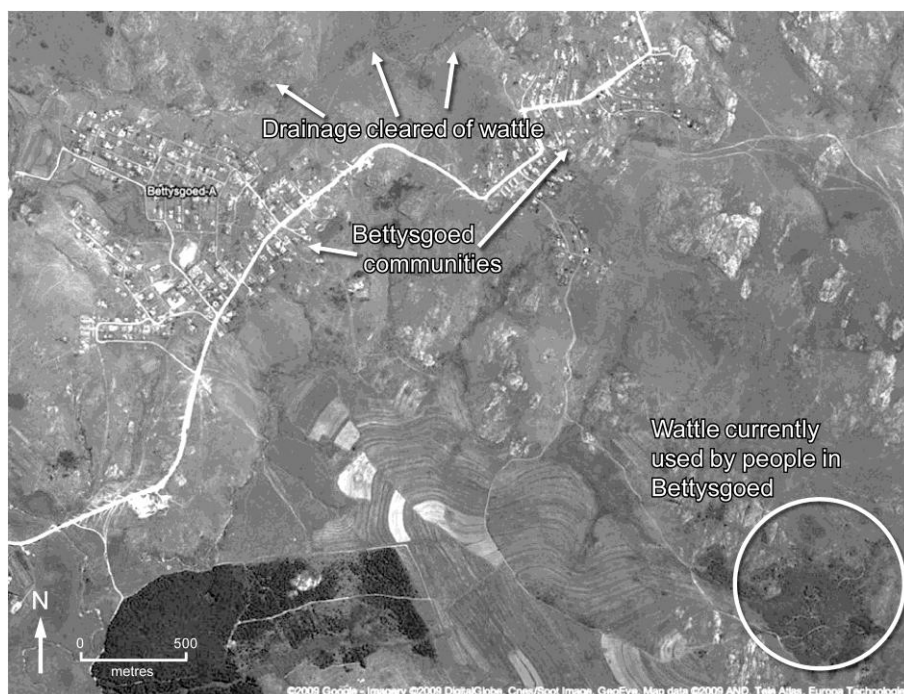


Figure 6: Satellite image of locations where people of Bettysgoed harvested wattle in the past (cleared by Working for Water), and where they currently harvest wattle. Source: Google-Map data/Tele Atlas (accessed July 2009)

The interaction between commercial, livelihood, government policies and WfW programs has given rise to the widespread perception that wattle is in decline in the Oshoek-Lochiel area. Nearly 70% of respondents believed that wattle had declined since their arrival in the area. Only one respondent who had lived in the area for over 30 years felt that wattle had increased in the landscape due to several fires. People attributed the decline to various causes: population increase, the WfW program, the charcoal cutters and charcoal industry. The widespread perception that wattle is decreasing in the community has forced people to call for securing and expanding wattle in their localities, because without it, their lives and livelihoods would be impossible. Most survey respondents wanted to see between 40% and 60% of all available land in their area covered with wattle. They stated that these wattle stands should be managed as community wattle, with rules for pruning, thinning and stem-sizes specified for harvesting. They noted that these rules would enable wattle in community

stands to grow tall and allow space for movement for managing and harvesting. Most respondents felt that if this percentage of open land were set aside for wattle, then there would be enough left over for growing crops, grazing cattle, and sustaining the population of the area.

In summary, the respondents' views reflect the desire for some kind of community-managed forestry program that addresses both subsistence and the possibility to earn some income from petty trade in wattle. From the perspective of communities in the Oshoek-Lochiel area, the assurance of secure wattle supplies with the support of government agencies would provide the basis for maintaining their landscape and offer the possibility of economic development.

Conclusion

Johan Hattingh points out that there are tensions in the way we currently frame and discuss introduced species. The language used to describe introduced species is imbued with values that present these as impure, harmful, non-native, or artificial in contrast to a seemingly pure, healthy, native, and natural state of harmony that existed prior to their arrival. He argues that when this language is juxtaposed with modern discourses of globalisation and postmodernity, it provides "no justification to oppose environmental destruction or degradation." (Hattingh 2001: 188). Hattingh calls for 'an ethic of conceptual responsibility' in the approach to managing 'invasive alien species':

... in which we take responsibility for the conceptual distinctions we choose to make and the values we allow to inform these choices. This ethic of conceptual responsibility requires us to articulate...the reasons for our conceptual distinctions and the narrative frameworks, and the codes and the rules in terms of which we utilize them...and acknowledge that these narrative frameworks in terms of which we think and act have histories...and have significant real life consequences (2001: 193).

The views of our survey respondents in Oshoek-Lochiel would be regarded as untenable for many scientists and environmentalists who campaign against alien invasive species. However, the reality of what is currently happening for communities that rely heavily on wattle may require scientists and government agencies to adopt an alternative approach to effectively achieve their goals of sustainable development, resource conservation and biodiversity protection. Approaching these goals from an ethic of conceptual responsibility can provide greater legitimacy to the views of people in Oshoek-Lochiel, to understand how they live and to how they interact with the wattle in their surrounding landscape. It would enable different institutional approaches to facilitate the management of landscapes

at the local level and work to convey knowledge and understanding of local realities up the political hierarchy.

The challenge of managing exotic weedy species such as wattle in South Africa is reflected in the complex and diverse ways in which wattle is embedded in socio-ecological relationships in the landscape. National policies that address control of wattle and other exotic species need to be based on locally relevant and informed interventions. This does not require a wholesale revision of the current policy framework, but rather a shift in discourse in the way introduced species are conceptualised and framed, and the scales at which policy prescriptions for management are written. Although the current policy framework does seek to address the conflicts of interest developed around the wattle over the years, it does not achieve the post-apartheid government's goals of combining environment and development partly because the wattle has been framed in negative terms for the environment.

There is some evidence that Working for Water is adopting an alternative approach to introduced weedy species. The Director of WfW insists that the program is now proceeding down a path where rural communities are involved in the process of deciding where wattle is removed and where it is retained for community use (Preston, interview 2007). If Working for Water can engage government agencies such as DWAF and Department of Agriculture to work together with municipal councillors, traditional authorities, and community representatives to develop land and weed management plans at the local and regional landscape levels, then the national goal of combining environment and development might be better achieved.

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