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Conservation justice in metropolitan Cape Town: A study at the Macassar Dunes Conservation Area

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ABSTRACT

Conservation justice, a concept analogous to environmental justice, suggests that local communities are entitled to receive fair treatment and meaningful involvement in the development and implementation of conservation policy. In this study, of an urban conservation project in Cape Town, South Africa, we contribute to the ongoing conversation about the importance of community-based conservation approaches. Conservationists must work to plan and implement projects in ways that are not only acceptable to stakeholders, but inspire local community involvement in achieving conservation goals. Given its location in the impoverished Cape Flats region of metropolitan Cape Town and its unique ecological and conservation value, the Macassar Dunes Conservation Area warrants a conservation justice approach. We conducted semi-structured interviews with members of interested and affected communities, then analyzed stakeholder perspectives on biodiversity protection, fencing, and informal housing. The results suggest that despite disparity among groups in needs and perspectives, conservation projects have potential to deliver tangible benefits to all stakeholder groups. A belief in conservation is universal across stakeholder lines, but contrasting needs and perspectives of the studied groups lead to conflicting views on important issues of implementation. An understanding of different stakeholder groups' specific needs and interests is therefore essential for successful implementation of sustainable urban conservation projects.

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1. Introduction

Since colonial expansion, conservationists have altered African social, political, and economic systems for their own benefit (Scroeder, 1999; King, 2007). Following the belief that human activity disrupts ecosystems, conservationists fenced off African landscapes with little consideration for local communities or displaced populations (Scroeder, 1999; Fabricius and de Wet, 2002; Chapin, 2004; Wells and McShane, 2004; King, 2007). Colonial era conservationists' 'top-down' approaches to protected area management laid the foundation for tense relationships between conservationists and local communities that still exist today (Brown, 2002; Chapin, 2004; Wells and McShane, 2004). Such tense relationships are demonstrated at Mkambati Nature Reserve in Eastern Cape, South Africa where local youths engage in the practice of *ukujola*, 'taking by stealth or by cunning that which is

rightfully yours', through the hunting of wildlife with dogs and firearms (Fabricius and de Wet, 2002).

The publication of 'Our Common Future' in 1987, the Brundtland Commission's report for the United Nations World Commission of Environment and Development (Brundtland, 1987), established the idea of sustainable development and motivated conservationists to consider community-based conservation or Integrated Conservation and Development Projects (ICDPs) that reconcile biodiversity conservation and socio-economic development instead of the traditional 'fences and fines' approach (Mebratu, 1998; Songorwa, 1999; Brown, 2002). The Brundtland Commission emphasized the paramount goal of meeting the needs of the poor, and a key focus of subsequent conservation thinking has been about how poverty constrains and interacts with conservation goals (e.g. Adams et al., 2004). Following this reasoning there is clearly a "justice" component in conceiving and implementing an integrated and sustainable community conservation action plan.

A "conservation justice" perspective can be viewed as the logical extension of community-based conservation. Indeed it is analogous to the idea of environmental justice (cf. Schlosberg, 2009), which insists upon the fair treatment and meaningful involvement of all people regardless of race, national origin or income with respect to the development, implementation, and enforcement of

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environmental laws, regulations, and policies (EPA, 1998). Environmental justice focuses on ensuring that no group bears a disproportionate burden of the negative consequences of environmental programs or policies (EPA, 1998). In natural resource management, there is also a strong literature that calls for justice in resource allocation so that individuals' rights are upheld and communities share in benefits of regulation as well as bearing the costs (e.g. Mutz et al., 2002; Thomas and Twyman, 2005; Zerner, 2000). As land conservation is an important subset of resource management actions, achieving justice in conservation requires working toward procedural and distributional fairness in planning and implementation. Conservation planners should accordingly meet standards of conservation justice, just as federal agencies in the United States, for example, have been required by law to follow environmental justice regulation (Executive Order 12898, 1994).

Although community-based conservation, and by extension conservation justice, is intellectually appealing, the implementation of the approach has frequently fallen short of its goals (Attwell and Cotterill, 2000; McShane, 2003; Chapin, 2004; Wilshusen et al., 2002; King, 2007). The movement has struggled to simultaneously pursue environmental and social objectives (Balint, 2006). In some cases, ICDPs have maintained a paternalistic control over local people expanding rather than reducing external control of natural resources (Chapin, 2004; King, 2007). This trend is exemplified at the Lupande Game Management Area in Zambia where community conservation projects have achieved the objective of reducing poaching, but failed to generate local participation in conservation programs (Wainwright and Wehrmeyer, 1998). In other locations, conservationists' attempts to incorporate local communities into the decision making process have resulted in poor environmental policy thereby compromising local biodiversity. Such was the case at Community Conservation locations evaluated in Nepal and Kenya where analysts observed that 'socio-economic goals assumed a much higher priority, at times compromising and subverting biodiversity conservation objectives' (Kellert et al., 2000, p. 711). Robinson and Redford described the current approach to community conservation as a 'jack of all trades, master of none' (Robinson and Redford, 2004, p. 10). The challenges associated with community conservation have caused many conservationists to revert to traditional protectionist conservation philosophies (Chapin, 2004; Wilshusen et al., 2002).

Large protected areas free of development are ideal for preserving biodiversity; however, significant levels of biodiversity can be located in populated metropolitan regions. Cape Town, South Africa is a prime example, and there is a clear need for novel community-based conservation approaches in urban settings (Redford and Richter, 1999; Miller and Hobbs, 2002; McShane, 2003). Throughout conservation literature there are many proposed solutions to the inconsistent practice and results of community-based conservation projects (Agrawal and Gibson, 1999; Robinson and Redford, 2004). The debate about how to make community-based conservation effective encompasses many examples set in Africa, but almost always these are in rural settings (e.g. Lepp and Holland, 2006; Norgrove and Hulme, 2006; Scanlon and Kull, 2009). We can find only two published accounts that mention the need to address community-based conservation in urban settings (Simelane et al., 2006; Saunders et al., 2008). Successful projects overcome the same common failings of traditional top-down conservation by engaging local community members in the planning procedure (Norgrove and Hulme, 2006), and in discussions of needs and tangible benefits (Lepp and Holland, 2006; Upton et al., 2008). We believe that community conservation and by extension conservation justice can indeed be effectively implemented in urban settings, by drawing on previous successes in African rural conservation projects, and adapting them to metropolitan settings with some modification that takes into account the greater density of communities

and individuals, which can frustrate communication and potentially exacerbate commons problems (Ostrom, 1990).

How would a standardized conservation justice perspective on community involvement alter interactions between stakeholders and conservationists? Often stakeholder involvement has been viewed as a necessary hurdle for conservation action. Conservationists frequently do not invite local communities to formulate conservation policy; they simply allow them to comment on previously crafted plans (Chapin, 2004; Norgrove and Hulme, 2006). The hesitancy to fully immerse local communities into conservation planning processes is often based on a fear of what stakeholders might request. A common view among conservationists is that local communities will only support plans with some promise of socio-economic benefits (Gibson and Marks, 1995; Songorwa, 1999). We do not view this as an irrational demand. In areas of vast socio-economic disparity, it would be unjust to restrict tangible benefits from local stakeholders. However, the premise of a conservation justice perspective is based on a belief that there are more shared interests between conservationists and local communities than failed community conservation projects would indicate. The current view of stakeholders as uni-dimensional impediments to conservation projects must be replaced by holistic considerations of stakeholders as multi-dimensional actors with transitive priorities, as has been done in, for example, the development practice of Participatory Rural Appraisal (e.g. Chambers, 1994). The expectation of course is that society in general as well as local stakeholders will benefit from such an approach to sustainable conservation. In the Macassar Dunes case, for example, the wider communities of Cape Town and South Africa benefit through preservation of the region's biodiversity and unique biological heritage. It is the task of the modern day conservationist to work side-by-side with local communities and government organizations in the creation of conservation policy that is not only tolerable to stakeholders, but inspires local community involvement in achieving conservation goals (Grainger, 2003; Redford, 2003; Berkes, 2004). We believe the current relationship between conservationists and stakeholders often fails to achieve this objective (Chapin, 2004; Robinson and Redford, 2004, p. 10; King, 2007).

We predict that a conservation justice expectation of community involvement will result in sustainable conservation methods that yield tangible benefits for local communities (cf. Schlosberg, 2009). A required standard of community involvement would help conservationists to better understand the interests of the community around them and prevent further failed community conservation projects. Because the needs and prospects of each project are distinct and context-dependent social context (Upton et al., 2008), such engagement should decrease the chance of failure.

In this study we test the idea of conservation justice at the Macassar Dunes Conservation Area in the Cape Flats Area of Cape Town, South Africa. Conservation Justice is highly relevant in Cape Town, South Africa, particularly on the Cape Flats where a globally unique Fynbos biome landscape (the Cape Flats Fynbos/Thicket mosaic (Milton et al., 1999; Cowling and Hejnis, 2001; Pressey et al., 2003), also known as the Cape Flats Sand Fynbos/Dune Strandveld mosaic (Rebelo et al., 2006)), and globally threatened species directly adjoin urban communities living in poverty.

The Cape Flats Fynbos/Thicket system comprises an area of exceptional biodiversity and conservation threat. Indeed it is listed as a critically endangered system with only about 1–4% of the area afforded some conservation protection and perhaps only about 20% remaining semi-natural (Rebelo et al., 2006). Across 11 small natural vegetation fragments within the Cape Flats, totalling 4.8 km², 857 plant species are found of which 48 are Red Data Book listed (Hilton-Taylor, 1996) and 14+ are locally endemic (Milton et al., 1999; Rebelo et al., 2006). Thus the probability of species extinction remains quite high due not only to continuing urbanization

of the landscape, but also the spread of alien invasive plant species (Pressey et al., 2003).

At the Macassar Dunes Conservation Area, for which there was ongoing conservation planning but had not reached the stage of full implementation, we interviewed conservation professionals and other stakeholders about conservation issues to understand:

- Stakeholders' interest in conservation and the potential for a conservation justice management plan.
- Stakeholders' opinions of contentious issues such as fencing and informal housing at the conservation area that would need to be addressed in a conservation justice management plan.

2. Methods

2.1. Field site: Macassar Dunes Conservation Area

The Macassar Dunes is a 1200 hectare conservation area located in the Cape Flats section of Cape Town between Khayelitsha Township, the Macassar Community, the False Bay, and the Eerste River. The site is comprised of three main dunes. Conservation efforts at the Macassar Dunes have focused on the 337 hectare Western Dune (e.g. Fig. 1). (EEU – UCT, 2006).

The Macassar Dunes are the Cape Flats' tallest and most intact remaining dunes system with one of the last surviving sections of the region's unique coastal dune Strandveld vegetation (EEU – UCT, 2006). The Macassar Dunes is a declared Conservation Area and has been identified as a key location for conservation by the City of Cape Town's biodiversity network, the South African Botanical Society and other groups (Milton et al. 1999; CNdV Africa, 2000; Pressey et al., 2003; EEU – UCT, 2006; Rebelo et al., 2006).

Conservation efforts are complicated by the dunes' use for sand extraction, off road vehicle recreation, agricultural activities, wood cutting, dumping, vagrancy, fire, and by numerous contradictory pre- and post-apartheid land planning documents (CNdV Africa, 2000).

The environmental qualities of the Macassar Dunes have inspired conservationists to persevere in spite of strong competing socio-economic demands. Macassar Dunes is valuable for its size, opportunities for environmentally friendly recreation, service as a buffer for the Cape Flats against prevailing winds, potential for environmental education, and aesthetic qualities (CNdV Africa, 2000). Cape Flats Nature, a community conservation organization, has led efforts along with the City of Cape Town to advance conservation at the dunes.

Unique environmental qualities, ongoing community conservation efforts, and the need for social uplift in the surrounding community make the Macassar Dunes an ideal venue to study conservation justice.

2.2. The stakeholder groups

To assess the potential of a conservation justice management agreement at the Macassar Dunes we compared the opinions of Macassar Dunes stakeholder groups of the conservation area's current policies. Four key stakeholder groups were identified: paid conservationists, the Enkanini Community, the Macassar Community, and unpaid conservationists.

The paid conservationists group consists of conservationists and conservation project advisors who have created or influenced conservation policy at the Macassar Dunes Conservation Area. Paid conservationists are employed by the City of Cape Town, and local and international environmental non-governmental organizations.

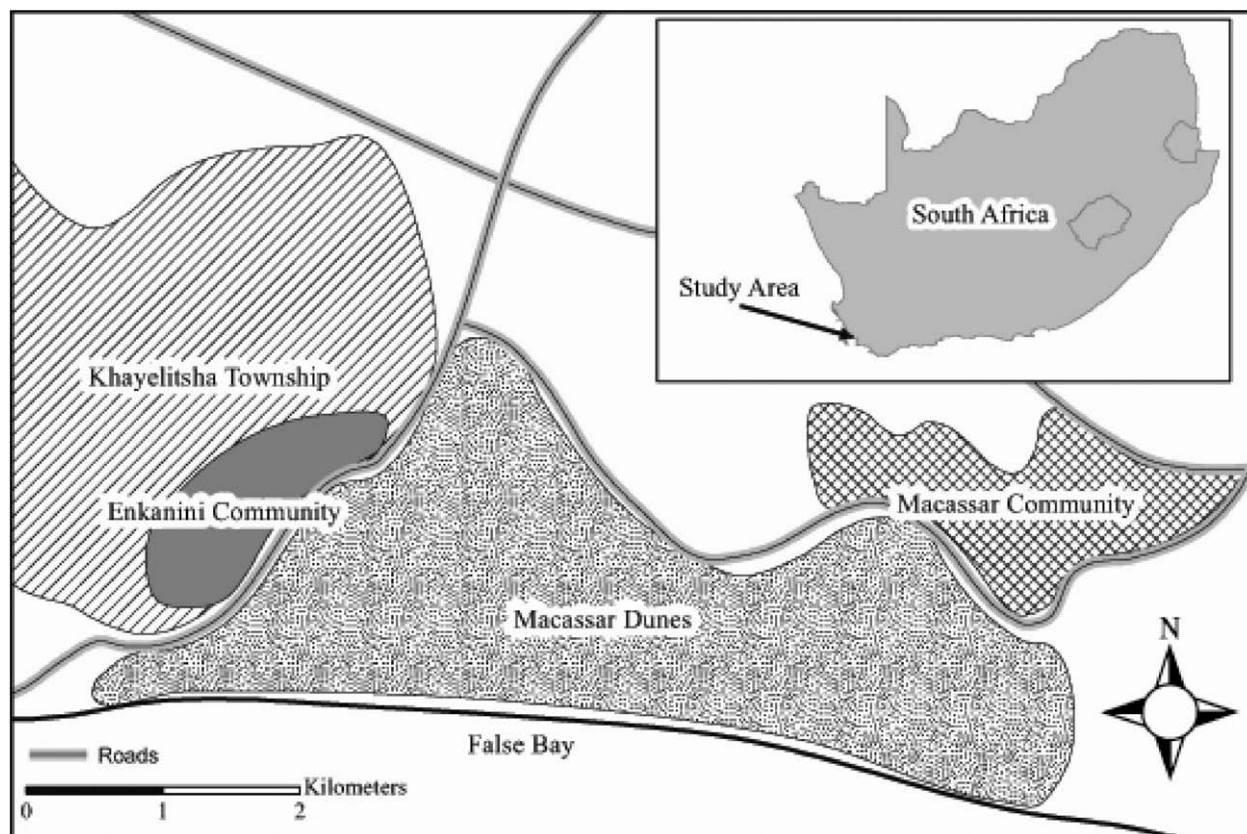


Fig. 1. An image of the Macassar Dunes Conservation Area depicting the location of the Enkanini Community, the Macassar Community, and the Conservation Area.

All members of the conservationist stakeholder group have completed some form of post-secondary education. Paid conservationists who had worked at the Macassar Dunes were identified for interviews by networking with members of Cape Flats Nature and City of Cape Town Conservation.

The Enkanini stakeholder group consists of residents of the Enkanini Community. Enkanini, a Xhosa speaking community, is an area to the west of Macassar Dunes Conservation Area comprised of informal settlements that are part of Khayelitsha, the largest black township in Cape Town (e.g. Fig. 1). Enkanini was formed in 2002 to accommodate South African Blacks migrating from rural Eastern Cape communities. Migrants moved to Enkanini because it was the furthest frontier of the Khayelitsha township and provided open space to create informal settlements. The continual expansion of the Enkanini Community is one of the Macassar Dunes' greatest threats. Today, a road is all that divides the Macassar Dunes Conservation Area from the Enkanini Community. Over 80% of Enkanini residents that participated in the survey have not completed secondary education and almost all interviewed residents were unemployed. The continuous growth of Khayelitsha has hindered the government's effort to provide water and sanitation facilities to the Enkanini Community. The social issues Enkanini faces are reflected on the western Macassar Dune by heaps of garbage and human waste. Members of the Enkanini Community were identified for interviews at random.

The Macassar Community is an area to the east of the Macassar Dunes Conservation Area and its residents comprise the Macassar Community stakeholder group. The Macassar Community is a mixed race, Afrikaans speaking community that has resided on the eastern edge of the dunes for over 200 years. The Macassar community traditionally used the dunes for livestock grazing until the Apartheid government repossessed the lands for government use. Many elder members of the Macassar community still feel a deep connection with the Eastern Dune. With the modernization of Cape Town, Macassar residents have shifted from subsistence farming to basic occupations such as clerks, factory workers, and tradesmen. A major controversy in the Macassar Community is the use of the Dunes for sand mining and recreational vehicle driving. Older Macassar residents view these uses as assaults on the community's heritage. Members of the Macassar community were identified for interviews at random.

The unpaid conservationist group consists of community leaders, volunteers, and activists from the Cape Flats who are involved in conservation efforts at the Macassar Dunes. The majority of unpaid conservationists are unemployed and reside in Khayelitsha Township. Many of the unpaid conservationists were involved in the struggles to end apartheid and appreciate the opportunities presented by local environmental movements to continue serving their community. Five unpaid conservationists from Macassar were drawn into the environmental movement from their involvement in conflicts over land use and sand mining issues at the Eastern Macassar Dune. Unpaid conservationists who had worked at the Macassar Dunes were identified for interviews by networking with members of Cape Flats Nature and City of Cape Town Conservation.

2.3. Data collection and analysis

Semi-structured interviews (following Bernard, 2002), which use a list of questions to be covered in a particular order, but allow the informant a great deal of space to expand upon the questions, were conducted with 20 members of the conservationist stakeholder group, 19 members of the Enkanini stakeholder group, 16 members of the Macassar stakeholder group, and 21 members of the unpaid conservationist stakeholder group from April 2006 to July 2006. Informant tangents during the lengthy interview process are what

lead to a deeper and fuller understanding of the issues being researched. The semi-structured interview approach is commonly used for comparing the opinions of stakeholder groups in conservation studies and typically generates sample sizes comparable to ours (e.g. Picard, 2003; Gavin, 2004; Gavin and Anderson, 2007). Similar data collection approaches were used in stakeholder analysis assessments at the Brazilian Pantanal (Bouton and Frederick, 2003) and the St. Lucia Wetland Park in South Africa (Picard, 2003).

Questionnaire studies raise a concern that informants will not respond honestly or will attempt to appease their interviewer (Bernard, 2002). To avoid biased interviews we promised informants confidentiality, conducted interviews in informant's native languages at their home or office, and did not discuss our opinions of the conservation issues at question. Interview questions were tested for comprehension within each stakeholder group before being administered and approved by the University of Connecticut Institutional Review Board.

The semi-structured interviews were analyzed with a 'grounded theory' approach. In grounded theory, the researcher identifies themes that occur in interview transcripts and links the concepts into theories (Bernard, 2002, p. 492). For each of the analyzed questions in this paper, we identified and coded common responses. In analyzing stakeholder responses, we applied chi-square tests to determine whether the proportions of responses in each response category were significantly different across the four groups, then used Bonferroni correction to account for the simultaneous comparisons of proportions (Snedecor and Cochran, 1989). All analyses were done in R 2.6.1 (R Development Core Team, 2007).

3. Results

3.1. Is conservation of biodiversity important?

All interview subjects unanimously agreed that the conservation of biodiversity is important. To ensure comprehension of the question, the definition of biodiversity as outlined by the City of Cape Town's Biodiversity Strategy was read to all informants. For some informants in the Enkanini and Macassar stakeholder groups, 'conserving biodiversity' was also translated as 'protecting nature'.

In the Enkanini stakeholder group aesthetic, moral, and religious reasons were primarily used to justify the importance of conservation. Several informants from the Enkanini Community cited the beauty of the neighbouring Macassar Dunes as a major reason why environmentalism is important. Other Enkanini residents discussed the philosophy of Ubuntu, the interconnectedness of all living people and organisms, as the reason they care about the environment (Kamwangamalu, 1999).

Community heritage was the primary reason why Macassar Community residents valued the conservation of biodiversity. In our sampling of Macassar residents we spoke with several elderly individuals who discussed the community's long-standing relationship with the dunes as a site for animal grazing and recreation. Elder community members advocated conservation because of a belief that the community's defining natural landmarks should be preserved.

Members of the paid conservationist and unpaid conservationist stakeholder groups articulated a series of moral, heritage, aesthetic, and scientific arguments in favour of the conservation of biodiversity.

3.2. What is the importance of conservation compared to other social and political issues facing Cape Town?

While all respondents agreed on the importance of conservation, stakeholders did not agree on how conservation should be

prioritized compared to other social issues facing South Africa (e.g. Fig. 2). For opinions about the importance and priority of conservation, the only response that showed significant differences among groups was the response that conservation should be secondary (Bonferroni-corrected $P = 0.001$, $\chi^2 = 18.45$) (Fig. 2). Unpaid Conservationist had by far the lowest proportion of responses in this category (1 of 20 respondents), and the Enkanini group had the highest proportion (11 of 19 respondents) (Fig. 2).

Members of the conservationist stakeholder group, aware of the other social struggles affecting the Cape Flats, suggested that conservation be integrated with the city's other social initiatives such as housing, public health, and education. For some conservationists, this approach was advocated because of the interconnectedness of conservation with public health, housing, and other social issues facing the region. Other Cape Town conservation officials favoured an integrated approach to conservation because of a belief that prioritization of conservation over other social issues facing the region would be rejected by local lawmakers and the community.

A majority of Enkanini and Macassar Respondents felt that conservation should be pursued as a secondary political issue. Living in the midst of high levels of crime, inadequate housing and improper sanitation facilities, it was difficult for many respondents to justify prioritizing conservation over their immediate needs (see Fig. 3).

A majority of unpaid conservationists suggested that conservation be prioritized as one of South Africa's main political priorities. Unpaid conservationists' passion for conservation has moved them to work without pay; it is not surprising that they supported conservation as a top issue even in the midst of Cape Town's social struggles. In addition, many unemployed unpaid conservationists

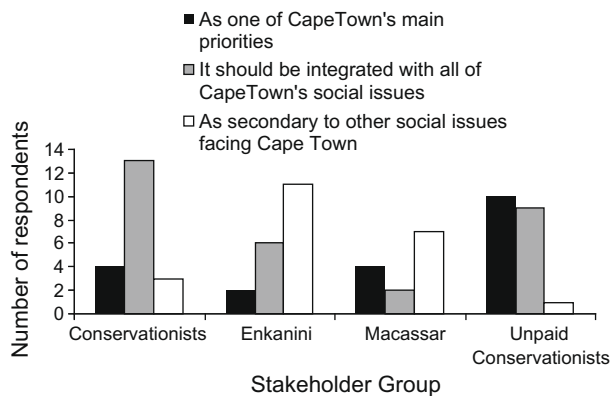


Fig. 2. Opinions of stakeholders in the Macassar Dunes Conservation Area on the importance and priority of conservation as a social goal.

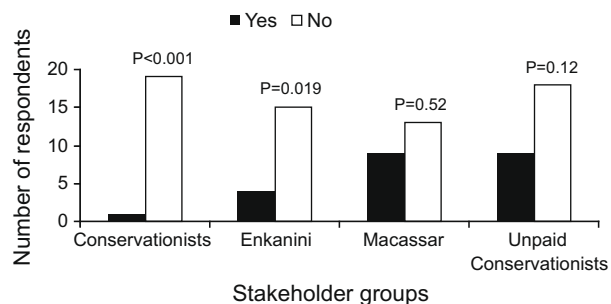


Fig. 3. Stakeholder opinions about whether informal housing should be allowed in the Macassar Dunes Conservation Area, with P -values reporting the significance levels of exact binomial tests of whether response proportions for each group differed significantly from random.

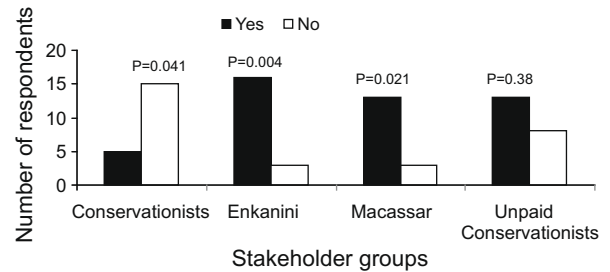


Fig. 4. Stakeholder responses to the question whether the Macassar Dunes Conservation Area should be fenced, with P -values reporting the significance levels of exact binomial tests of whether the response proportions for each group differed significantly from random.

hoped that increased prioritization of conservation initiatives would lead to job opportunities within conservation organizations.

3.3. Should unplanned housing be allowed on the conservation area?

We found that there were only marginally significant differences among groups in their opinions about informal housing. ($P = 0.044$, $\chi^2 = 8.094$), with the professional conservationists having by far the lowest proportion of respondents favouring informal housing (1 of 20 respondents). Many leading Cape Town conservationists interviewed asserted that informal housing is one of the greatest threats to the Macassar Dunes Conservation Area. Members of all stakeholder groups who responded that informal housing should be allowed on the conservation area were motivated by sympathy for newly arrived urban migrants without a place to stay. These respondents would not oppose informal settlements until the government provides alternative housing. Some paid conservationists and unpaid conservationists suggested that carefully zoned, up-scale, eco-friendly housing developments could be effective in ending the threat of informal settlements compromising the protected area. Other Macassar residents suggested that some parts of the dunes that have previously been mined for sand could be used for non-informal housing.

3.4. Should there be a fence around the conservation area?

The use of fences to safeguard biodiversity has been a contentious issue at the dunes. The issue of fencing drew strongly and significantly different responses from the four groups ($P = 0.0004$, $\chi^2 = 18.09$), with the professional conservationists having by far the lowest proportion of respondents favouring fencing (5 of 20 respondents) (Fig. 4). Paid conservationists, who believed that stakeholders will benefit from recreational use of the conservation area, expressed concern that a fence would disconnect the surrounding community from the conservation area and be perceived as a signal that visitors are not welcome. Furthermore, conservationists feared that without extensive security a fence would be torn down and re-used in a nearby informal settlement.

In contrast to paid conservationists, surrounding residents, and unpaid conservationists believed that conservation infrastructure controlling visitor entrance to the Macassar Dunes space could help manage safety concerns and minimize crime. Some Enkanini residents hoped that fencing would force the government to provide sanitation facilities.

4. Discussion

The foundation of the conservation justice perspective is an expectation that all stakeholder groups have some level of interest in environmental conservation, while differences in needs prevent

some stakeholder groups from agreeing on the priority of conservation relative to other social issues. This study demonstrates a strong consensus across stakeholder groups in favour of the conservation of biodiversity. There is thus a clear opportunity for successful conservation action that embodies the idea of conservation justice to protect the Macassar Dunes.

Equally clear, however, are the strong contrasts among the groups in their economic needs, and consequently in their attitudes about the importance of conservation. Enkanini residents and Macassar residents were unable to prioritize conservation while proper housing, safety from crime, and, in some cases, sanitation facilities were lacking. Conservationists should not disregard these stakeholder groups, but rather should consider their potential to contribute to environmental causes if their priorities are incorporated into management plans. A new generation of post-apartheid conservationists in South Africa is embracing community involvement and could bring views of all stakeholders in line for successful conservation plans.

To create successful conservation plans, information on the opinions of stakeholders is necessary since it is impossible to provide stakeholders with tangible benefits if the interests of surrounding community members are not fully understood. However, obtaining relevant opinions is not easy, and engaging stakeholders is a time consuming endeavor. As an example, the logistics of coordinating interviews with eighty stakeholders for this analysis took over 10 weeks. Furthermore, community engagement is outside of many conservationists' areas of expertise (Attwell and Cotterill 2000; Chapin 2004). This knowledge gap is shrinking with more integrated conservation education, but the undesirable alternative to community engagement remains: information deficits that lead to faulty community conservation plans (Lepp and Holland 2006). Employing unpaid conservationists as liaisons to the local community is a potential solution to information deficits in community conservation. In our study, we found that unpaid conservationists are often leaders in their local communities. Knowledge of different factions on local conservation issues would enable unpaid conservationists to understand the opinions of local stakeholders more efficiently than conservationists from outside the community.

We believe modern conservation organizations must value capacity builders that facilitate conservationist stakeholder communication as highly as ecologists. In the modern struggle to conserve biodiversity, ecological, and societal information are equally valuable. Conservation justice rules requiring community involvement will help encourage conservationists to acquire vital information on communities' opinions of conservation issues (cf. Lepp and Holland 2006). In cases where disagreements initially prove hard to bridge, a variety of conflict resolution tool that have proven successful in conservation settings can be implemented (e.g. Sullivan et al., 2008; Lansford 2009; Watts and Fraasen 2009).

Developing conservation management plans that satisfy the requirements of conservation justice will require conservationists and stakeholders to discuss controversial conservation issues. At the Macassar Dunes these issues included the uncontrolled spread of informal settlements and fencing around the protected area. Our study shows that conservationists and the surrounding community are in agreement that informal settlements must be kept off the dunes. However, there is disagreement between conservationists and local community members on the use of fencing at the conservation area. Our study suggests that fencing – or some alternative that will achieve the same security objectives – should be further discussed as a part of the conservation plan, and that professional conservationists should re-think their opposition to fencing in light of local attitudes. This is an example where local needs do not conflict with biodiversity conservation, but where conservation may fail if conservationists remain ignorant of local perceptions and needs.

Conservation justice does not suggest that conservationists design conservation policy based on majority-rule stakeholder input. Such an approach would result in ineffective conservation policy where socio-economic interests outweigh conservation objectives (cf. Adams et al., 2004; Attwell and Cotterill, 2000). Instead, conservationists must incorporate stakeholders' motivation for a fence, security, into the conservation policy framework. If conservationists can successfully provide the surrounding community with some basic needs, particularly housing, sanitation facilities, and security, then fencing may no longer be necessary. Failing to respond to these needs in a realistic way would be unfair and in any case would make it unlikely that a conservation plan will function well (Mutz et al., 2002). Dialogue among groups will be vital to choosing an effective, sustainable biodiversity conservation plan for this critically endangered biotic system.

There is a risk that providing stakeholders with better housing, sanitation facilities, and security could increase the pressures of the surrounding community on the Conservation Area through an influx of new settlers attracted by the provision of socio-economic benefits to people bordering the dunes. But pragmatically, we need to accept that large numbers of impoverished people will continue to live in and around many reserve areas, including the Macassar Dunes, and without their support the reserve will not be successful (Norgrove and Hulme, 2006; Zerner, 2000). Our perspective on conservation justice suggests that it is vital to incorporate the needs of surrounding community into conservation planning because it will create a larger group of people capable of contributing to conservation efforts and motivated to do so. In this way, conservation justice is comparable to Martha Nussbaum's capabilities approach to human rights, which suggests it is essential to understand what people require in order to become capable of performing the major areas of human functioning (Nussbaum, 2000; Hayden, 2001), it is also related to the Brundtland Commission's more general idea of meeting essential needs (Brundtland, 1987). Our study demonstrates a widespread belief in the importance of conservation across ethnically and economically diverse groups in an urban, metropolitan setting. In designing and implementing their plans in this complex terrain of interests and cultural backgrounds, conservationists must seek to understand what stakeholders require to become capable of contributing to conservation projects. Without a doubt this is a difficult task, as it requires bridging racial and class differences; but it is a task necessary for achieving conservation success.

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