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Wildlife in Vernacular as a Means for an Inclusive Environmental Sector and Community Engagement in South Africa

Fortunate M. Phaka [a,b,c]

[a]African Amphibian Conservation Research Group, Unit for Environmental Sciences and Management, North-West University, Potchefstroom, Republic of South Africa; [b]South African Institute for Aquatic Biodiversity, Makhanda, Republic of South Africa; [c]Centre for Environmental Sciences, Research Group Zoology: Biodiversity and Toxicology, Hasselt University, Diepenbeek, Belgium

ABSTRACT

South Africa has contrasts between integrative environmental law and pre-democratic social exclusion in the environmental sector. Communicating wildlife in vernacular, sharing wildlife knowledge in vernacular languages and consideration of wildlife according to vernacular contexts, contributes to inclusive environmental management. This wildlife in vernacular approach is based on seven years of mixed methods research which culminates in this paper on reflections of the possibilities attendant to communicating wildlife in vernacular languages. Firstly, community-level research and knowledge-sharing sessions resulted in the creation of an IsiZulu language field guide for frogs compiled specifically for the Zululand community. Subsequently, online surveys, conversational interviews, literature reviews, and DNA barcoding were used to expand on the studies of Indigenous cultural perspectives on herptiles (frogs and reptiles). Through this work, perspectives that are generally excluded from environmental decision making are revealed and capacity building for environmental management becomes linguistically accessible. This article discusses the untapped potential of often overlooked wildlife (frogs and reptiles) in marginalized vernacular languages and ways to achieve the largely unrealized environmental policy ambitions of being inclusive of all forms of knowledge, considerate of all perceptions of wildlife and affording everyone an opportunity to participate in environmental management regardless of their socioeconomic background.

KEY POLICY HIGHLIGHTS

- Marginalized Indigenous cultural perspectives have conservation value.
- South African legislation provides for inclusion of cultural practices in environmental management.
- Communicating wildlife in vernacular increases social inclusion and community engagement in environmental management.

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Environmental communication; ethnoherpetology; integrative conservation planning; indigenous knowledge systems; sustainable development goals

CONTACT Fortunate M. Phaka mafetap@gmail.com African Amphibian Conservation Research Group, Unit for Environmental Sciences and Management, North-West University, Private Bag X6001, Potchefstroom 2520, Republic of South Africa; South African Institute for Aquatic Biodiversity, Makhanda, Republic of South Africa; Centre for Environmental Sciences, Research Group Zoology: Biodiversity and Toxicology, Hasselt University, Diepenbeek, Belgium

Introduction

Throughout South Africa's democracy, scholars have highlighted communication in vernacular languages (Indigenous languages of African origin) as the most affective and effective way of knowledge transfer (Prinsloo et al., 2018; Prinsloo & Harvey, 2020; Webb, 2004), and an important part of democratic language planning. Contrarily, the approach pegged to potentially affect the most desirable change to communication is the least utilized, especially outside South African homes and in the country's environmental sector. Teaching, learning, and other forms of formal communication outside South African homes are mostly in English (Prinsloo et al., 2018), and most publicly accessible books about South Africa's natural environment are in English (Phaka, Vanhove et al., 2023). The English language is not the most commonly used among South Africa's 12 officialized languages (11 spoken languages and 1 sign language) and English proficiency in the country is low (Statistics South Africa, 2018). This dominance of one language means we might never fully appreciate the value of communicating in South Africa's vernacular languages.

For the South African environmental sector, English dominance leads to low linguistic accessibility in the opportunities available for a multilingual citizenry to learn about the environment sufficiently to participate in its management while the country's legislation advocates for such opportunities to be accessible to all citizens (Phaka, Vanhove et al., 2023). The dominance of English over other language options creates learning barriers and maintains existing inequalities in education (Parmegiani & Wildsmith-Cromarty, 2022) and other aspects of society. South Africa's multilingualism policy is meant to promote languages that are othered by English's dominance. There is however lax support or enforcement of this multilingualism policy thus inadvertently contributing to the maintenance of pre-democratic disregard for vernacular languages. It can also be argued that this multilingualism policy rather promotes monolingualism across different communities and multilingualism incidentally arises additively from single language use rather than through education using multiple languages simultaneously (Banda, 2009).

Just as legislation for multilingualism exists but is overlooked, there also exists socially and culturally inclusive environmental legislation yet the environmental sector remains largely exclusionary. Besides the low linguistic accessibility of opportunities to learn about the environment mentioned above, South Africa's environmental sector generally excludes most of the country's citizens (Leonard, 2013). This exclusionary sector exists amid environmental management legislation that is meant for integration of South African vernacular languages and vernacular ways (Indigenous value practice systems manifested as nature-based cultural practices). Furthermore, a public trust doctrine has been codified into South Africa's environmental management legislation as the environment is said to be held in public trust by the government for its people and protected for the people's interest (Republic of South Africa, 1998).

Environmental management cannot be said to be for the public's interest when research shows that most of the South African public and their interests are not represented in the country's environmental management. An example of environmental management with questionable public benefits is the establishment, governance, and management of multiple marine protected areas in South Africa resulting in the reduction and criminalization of vernacular ways and loss of tenure rights (Sowman & Sunde, 2018) as these social elements are excluded from the management of the marine environments in question. Exclusion in the South African environmental sector continues to be a concern as highlighted by multiple authors including Kothari (2006), Sowman and Sunde (2018), Kepe (2009), and Phaka, Hugé et al. (2023). The codification of the public trust doctrine into South Africa's environmental management is generally overlooked but it can be fully embraced when the various stakeholders of the environmental sector understand its importance and hold officials accountable for decision making that is not aligned with the doctrine (Blackmore, 2018).

The public cannot however hold officials accountable on environmental management matters without capacity or knowledge for participation in environmental management. With opportunities for a low English literacy (and low English usage) citizenry to learn about the environment

and build capacity for participation in environmental management being mostly available in English, this environmental communication has linguistic barriers to environmental capacity development (Phaka, Vanhove et al., 2023). A recent analysis of library books as opportunities to learn about the environment sufficiently to enable meaningful participation in environmental management revealed these opportunities are mostly available in English and thus linguistically inaccessible to South African vernacular language speakers and this issue has persisted through the country's democracy (Phaka, Vanhove et al., 2023). Consequently, a linguistic accessibility problem linked to language planning problems is having an impact on the environmental sector by being a barrier to vernacular language speakers' participation in environmental management practices.

There is irony in the exclusion of vernacular language speakers and their nature-based cultural practices from environmental management actions when their respective identities are inseparable from the environment. The vernacular ways of many South Africans marginalized from environmental issues compel protection of wildlife through extending kinship towards animals, projecting desirable human qualities such as physical strength onto animals and culturally tabooing environmental destruction while vernacular languages create awareness of local biodiversity (Phaka, Hugé et al., 2023). An example of wildlife protected through vernacular ways is the Mole Snake (scientific name *Pseudaspis cana*), known as uMajola in IsiXhosa, which South Africa's Majola clan (Mpondomise tribe) consider to be their kin, and they regard the snake's presence in their homes an honor (Bongela, 2001). Members of the Majola clan are protective of this snake that is part of their identity as a totem. Totemism demonstrates that African communal relationships extend beyond people to include the natural environment (Ewuoso, 2021).

I am of the view that leveraging relationships such as totemism in environmental communication for Indigenous cultural contexts contributes to making the message more relatable as opposed to the norm of impartial and objective reporting that is characteristic of the communications discipline. Okoliko (2024) has also argued that African relationality (as shown through totemism) contributes to a more relatable, observer-centric style of environmental communication. Perhaps observer-centric environmental communication in comparison to wildlife-centric messaging can better serve the purpose of demonstrating that people's wellbeing is intricately tied to a healthy environment. Such observer-centric messaging through African relationality involves anthropomorphism with its complexities and would therefore require further scholarship to understand those complexities.

The culturally intrinsic ethic of care and awareness of the environment has been part of South African Indigenous communities, and possibly other African communities, without modern conservation interventions. The existence and identity of marginalized South Africans are entwined with the very wildlife whose management they are marginalized from through multiple elements of culture including totemism, ritualism, and religion (Phaka, Hugé et al., 2023). Mashige (2011) reported that many Indigenous South African cultures teach the value of nature during childhood and have vernacular ways for governing their relationship with nature. These vernacular ways that prevent harm to the environment include extending kinship of people's clans to animals with desirable traits, and tabooing harm to the animals that clan members have kinship with (Phaka, Hugé et al., 2023). Despite this intimate connection to the environment, *a priori* conceptions generally consider cultural elements relating to wildlife to be detrimental to that wildlife (Phaka, Hugé et al., 2023). There is a general conception that vernacular ways, and vernacular language speakers who mostly subscribe to these vernacular ways cannot (or do not) care about the natural environment.

I argue here that the impact of language planning issues on continued social exclusion in the South African environmental sector can be lessened by communicating environmental science in the vernacular languages spoken by most of the country's population. If this vernacular language communication is to be relatable to the intended audience, then it should ideally incorporate how people relate to or understand the environment through their vernacular ways. Effective science communication should relate to the audience's perceptions (Fischhoff, 2013). Communicating science in general requires understanding of local contexts and perspectives of the target

audience (Guenther et al., 2018). Environmental communication should consider people and their interrelationships with the environment (Pezzullo, 2017; 2024). It is thus necessary to study vernacular ways, which are underrepresented in environmental matters, and have them inform communication of environmental matters in vernacular languages.

In this paper, I draw on seven years of studying how South African vernacular languages and vernacular ways relate to herptiles (frog and reptile species). This research on Indigenous cultural aspects relating to wildlife (specifically herptiles) informs evidence-based reflections on inclusive environmental management practices through consideration of wildlife in vernacular languages and ways. Among the outputs of this study of vernacular languages and ways are various forms of communicating wildlife in vernacular including scientific articles, a book, and a science communication outreach initiative. Thus, reflections shared in this paper also draw from practical experiences in addition to the documented evidence. The sections to follow present these reflections alongside a discussion of ecological communication in South Africa as a means for an inclusive environmental sector and community engagement tool.

Wildlife in vernacular as a means of ecological communication: the pilot and beyond

With the previously mentioned environmental policy and practice contradictions in mind, a collaborative approach with environmental scientists and practitioners of Indigenous cultures as its basis was piloted to highlight the social inclusion and community engagement benefits to be derived from the understanding and integration of vernacular language and ways relating to herptiles. Scholar-practitioner engagements can promote environmental justice while also encouraging future environmental research to be cognizant of its justness (Chen et al., 2012). It was an important goal of this project to bring environmental justice cognizance to the forefront of South African herpetological research (and the natural sciences field in general), while demonstrating that combining natural and social science methodology is a feasible research approach.

This section provides a brief overview of research methods used from pilot to full project phase and discusses the environmental communication value for these methods. I initially designed and carried out this research under the supervision of a team of postgraduate mentors who are experts in herpetology, conservation science, sustainability studies, and global environmental policy. Although coming from separate disciplines within the natural sciences, the mentors believe that the field should improve its societal impact and alignment to policy. I maintained the people and nature focus from the supervised postgraduate years as I progressed to an independent researcher whose work is premised on the idea that the success of wildlife conservation can be improved by being inclusive of the people it is meant to benefit. This is a premise necessitating a combination of natural and social science methodology in my research.

The full description of methods used in piloting a study of South African vernacular languages and ways relating to herptiles with the aim of producing an environmental communication intervention in a vernacular language was published in 2018 (Phaka, 2018). Subsequent methods that built on the pilot with a more broadly focused study were published in 2022 (Phaka, 2022). Research methodology used in the pilot phase (2016–2017) was community-level research, knowledge-sharing sessions (between community members and researchers) focused only on the community of the Zululand region in the KwaZulu-Natal province, and surveys of frog species that the Zululand community encounters. The pilot study was conducted with the blessing of the region's Tembe royal family and the knowledge-sharing session was also a culturally respectful gesture, to listen before you speak (especially among elders who joined the knowledge-sharing sessions), and it was also so that Zululand community members would teach researchers what they knew about frogs and researchers would reciprocate by sharing their biological science knowledge of frogs.

In a knowledge-sharing session, the researcher uses a modified semi-structured interview approach in a group context to ask community members about their knowledge of a particular

subject (in this case frogs) and in return the researcher shares their understanding of the same subject from the perspective of their field of expertise. This approach also fosters discussions among participants which can further reveal knowledge that was not shared when the original question was asked. The Zululand community's naming and classification of herptile species (specifically frog species) were documented along with Indigenous cultural knowledge about those species. The knowledge of frogs documented during this initial research phase was studied and combined with biological science knowledge and published as a frog book for the Zululand community written in their local IsiZulu language alongside English, and a scientific article that would make overlooked wildlife perspectives available to conservation practitioners.

With the wildlife guide and scientific article having demonstrated the feasibility of producing linguistically accessible environmental communication and caring about marginalized perspectives, it laid the foundation for expanding this type of research. The research focus beyond the pilot was expanded to South African reptiles as another culturally significant animal group and the country's diverse cultures in addition to Zulu. Given the cost implications of a nationwide study and the COVID19 pandemic's movement restrictions, the methods changed to replace knowledge-sharing sessions with a multilingual online questionnaire, review of existing literature on cultural practices, and using a conversational interview approach to learn about frogs and reptiles from traditional health practitioners as custodians of Indigenous knowledge. Additionally, generalized linear models and culturomics (computational lexicography) were used to investigate the influence of animal species' cultural importance on the collection of fundamental biodiversity data about those species, DNA barcoding served to confirm identity of herptiles used in traditional medicine, descriptive statistics were employed to understand the state of research inspired by South Africa's nature-based cultural practices, and a legal analysis was used to demonstrate how cultural practices can be used to protect herptiles through South Africa's customary law provision.

The documented knowledge was analyzed using thematic coding, etic and emic analysis, and descriptive statistics before being combined with biological science knowledge to produce both scientific outputs and outputs for people who are not herpetology experts. As a demonstration of the modern conservation value of vernacular languages and ways, they were framed according to modern conservation concepts that are outlined in South African post-apartheid environmental policy thus illustrating how these practices can be integrated into democratic conservation planning. While the transdisciplinary research approach produces outcomes that demonstrate possibilities of using cultural practices in modern conservation approaches it also embraces traditional cultural values of mutual respect as modern knowledge is not presumed to be superior to cultural knowledge.

This transcension of research disciplines made communication of wildlife in vernacular relatable to Indigenous language speakers and Indigenous cultural practitioners. As people's experience of wildlife cannot be confined to one research discipline, transdisciplinary research better captures the complex relationship between people's cultures and wildlife. The nuanced understanding of cultural practices obtained through employing transdisciplinary research methodology translates to a nuanced knowledge pool of previously marginalized perspectives that can inform integrative conservation planning. The survey of Indigenous knowledge throughout the research in discussion here enabled documentation and thus preservation of previously undocumented cultural knowledge relating to herptiles. This previously undocumented knowledge included the IsiZulu name for Reed Frogs (collectively called umgqagqa), Grass Frog species (from the *Pytchadena* genus) being regarded as harbingers of rain and African Clawed Frog species (from the *Xenopus* genus) being thought to rain from the sky during thunderstorms in Zulu culture (Phaka et al., 2019).

As the research focus expanded it was also revealed that VhaVenḓa generally taboo harming frogs and aquatic reptiles as these are part of waterbodies which are sacred to their culture (Phaka, Hugé et al., 2023). Although this knowledge was used by the local communities it was not available in any published format from which the environmental sector could learn that local wildlife awareness exists even without environmental awareness initiatives. Prior knowledge

of the awareness of local wildlife may be important in redesigning conservation initiatives so they are collaborative efforts where local community members and conservation practitioners understand each other's perspectives of wildlife instead of the norm of conservation practitioners imposing their perspectives on communities.

As the contexts in which people experience the environment differ, it was important for ecological communication to be based on how the target community experienced the wildlife around them. Consideration of local environmental perspectives of wildlife is also demanded by South African legislation (Republic of South Africa, 1998). By compiling a frog book according to how the Zululand community experience frogs (based on findings of the community-level research), and in their preferred language of IsiZulu there was a demonstration of environmental communication's potential to improve inclusivity in a sector known to be exclusionary. This approach proved affective as the Zululand community members that participated in the knowledge-sharing session expressed appreciation for the discussion of frogs in their area, active involvement in the development of reading material meant for them, and researchers that seek out their knowledge of frogs (rather than the presumptuous "teaching the community" approach) while in return sharing what they learned from biological sciences.

Zululand community members were also enthusiastic to read about an aspect of their environment in a language they use more often than English. This gratitude provides assurance that the chosen approach would be affective even though it takes longer to complete in comparison to conventional (non-collaborative) environmental communication interventions. This frog guide for the Zululand community provides a linguistically accessible means for the community to learn about the herptile element of their environment and it gives conservation practitioners a point of reference about local perspectives and the correct local names of frogs to use when Zululand is their focus area. Using a context-appropriate approach to ecological communication has led to outcomes that enable us to understand whether the long-standing generalization of cultures being detrimental to wildlife changes with an *a posteriori* understanding of cultural elements relating to animals.

Research subsequent to this publication of a frog book for the Zululand community (from the third year of this seven-year research project onwards), showed that with *a posteriori* understanding it becomes apparent that vernacular languages and ways can have both positive and negative conservation implications (Phaka, Hugé et al., 2023). Among other things, *a posteriori* understanding shows that people harvest wildlife for gastronomic purposes which can have negative conservation implications if wildlife is overharvested. Furthermore, the vocabulary associated with wildlife can either foster positive or negative perceptions towards wildlife with negative perceptions being a conservation concern, and there are conservation-promoting cultural norms which compel protection of wildlife.

Gaining this nuanced understanding of wildlife in vernacular was possible through devoting time to learning how people perceive animals through a traditional cultural lens and choosing an ideal wildlife group where the *a priori* conception is that they are culturally loathed animals thus presenting an opportunity for comparing this conception with evidence-based conclusions. This approach paved the way for a leapfrog in herpetological research communication and piloted methods that could be used as the basis for environmental communication in other natural science research fields.

Leapfrog in socially inclusive and culturally appropriate community engagement

The previous section briefly mentions demonstrating conservation value of cultural practices and this was an environmental communication output specifically meant for environmental management practitioners. It further mentions embracing cultural values of mutual respect by not presuming any knowledge to be superior, and this is what premised the leapfrog in socially inclusive and culturally appropriate communication of herptile research outputs. For the first time in South Africa there was a comprehensive frog guide published in an Indigenous language alongside English

and this book was called "A Bilingual Guide to Frogs of Zululand." The book was written in consultation with and according to the perspectives of its focal community.

As the IsiZulu frog names used by the Zululand community were not specific to each scientifically described species from the area, it necessitated study of guidelines for assigning Indigenous names to animals so they could in turn be used to extend the generic vernacular names to those that are specific to the 58 Zululand frogs species included in the book. These inherent guidelines of Indigenous naming practices when combined with naming guidelines formulated by zoologists, resulted in a comprehensive list of Indigenous language names that are recognizable to the speakers of those languages and also specific to each scientific species which would facilitate communication between environmental managers and the local community in future projects.

The guidelines for extending generalized vernacular names by adding descriptive adjectives to IsiZulu frog names are not specific to one language or animal group and have since been applied to compiling a comprehensive list of herptile names in all the officialized Indigenous South African languages. This comprehensive list, which was yet to be published at the drafting of this text, was used in a reptile guide for Limpopo province and Kruger National Park which is among South Africa's first English reptile guides to be published with Indigenous language names for each of the species discussed in the book (Stander, 2023). The guidelines for compiling comprehensive lists of vernacular names for species are published in a scientific article and thus available for environmental managers that wish to use them for the directed communication about species of interest with local community stakeholders. It is worth noting that the existence of vernacular names for wildlife demonstrates a community's awareness of their local biodiversity and these names enable engagement with the community using a preferred language (Mkize et al., 2003) even before these names are extended to a comprehensive list that is specific to all scientifically described species.

Linguistic accessibility of herptile reading materials is increasing and this is an aim of communicating wildlife in vernacular but there are several cultural nuances that become apparent in the process of working towards communicating wildlife in vernacular. Some of these nuances, once studied, contribute towards the knowledge pool of Indigenous wildlife perspectives that were previously ignored by the environmental sector. Increasing the pool of knowledge on nature-based cultural practices made it apparent that the *a priori* conclusions about cultural elements related to wildlife that judged cultures as having a negative conservation impact were an oversimplification of a complex relationship between cultures and wildlife. In what might be considered a leapfrog in current understanding of herptile-based cultural practices, *a posteriori* understanding made it apparent that herptiles in Zululand and the rest of the country were incorporated into diverse cultural value practice systems; some with negative conservation implications for herptiles, others with positive conservation implications while some had benign implications. With *a posteriori* understanding, this culture-wildlife relationship was grouped into 10 categories that communicate to environmental managers the varying levels of both positive and negative implications for herptile conservation (Phaka, Hugé et al., 2023).

A posteriori understanding made it apparent that some of what was previously dismissed as folk tales were observations of frog behavior without the biological science teachings required to explain the observed behavior (Phaka, Hugé et al., 2023). For instance, referring to Grass Frogs as rainmakers is regarded to be a tale passed down through generations, but in previous work, I explain how this was an observation of a physiological response resulting in increased activity during rainy weather thus leading to these frogs being considered harbingers of rain (Phaka et al., 2019). In community engagement, this rainmaker reference could serve as locally relatable basis for discussions of frogs' intimate connection to changing weather (and climate) and how they react to unfavorable arid conditions by moving away or decreasing activity thus making frog species ideal indicators of the state of ecosystems. It is important to find ways to engage with the target audience in ecological communication (Besley, 2015). Frogs as rainmakers demonstrate an attachment of value to these animals by local communities as rain is generally related to prosperity in many South African Indigenous cultural societies thus making Grass Frogs welcomed heralds of rain. Inclusion of

frog rainmaker references in frog conservation collaborations between conservation practitioners and Indigenous culture custodians/practitioners could make such actions to conserve an omen of cherished rain more relatable when compared to the usual "save wildlife to save the world" abstract conservation messaging.

Another example of leveraging cultural nuances to improve environmental communication would be through VhaVenḓa consideration of aquatic herptiles as part of sacred waterbodies that should not be harmed (Phaka, Hugé et al., 2023). Aquatic herptiles are already afforded protection through what might have been considered a myth, and thus prevention of water pollution and wastage can be communicated as a means of protecting the VhaVenḓa peoples' sacred waterbodies and their animals. Further cultural nuances that are relevant to environmental communication in vernacular can be found in the vocabulary used in cultural prose and poetry's references to herptiles. Batswana use vocabulary that relates crocodiles to peace and heroism (Kgoroeadira, 1993), thus making it possible to communicate the threats of crocodile populations in areas inhabited by Batswana as a threat to this important symbol in their culture. Multiple other instances of cultural elements that can be leveraged for relatable environmental communication exist. These parts of culture that inspire environmental protection can ultimately be incorporated into existing wildlife conservation planning through South Africa's customary law provisions to make conservation socially inclusive and culturally appropriate (Phaka, Hugé et al., 2023).

In addition to making apparent the intricacies of herptile-related vernacular language and ways, I have also demonstrated that relatable framing of environmental communication can be adapted to different contexts. From communicating frogs in IsiZulu I adapted methodology to focus on herptiles in multiple South African vernacular languages and demonstrated the possibilities of leveraging different vernacular ways, from prose to observations, in such communication. This relatable framing in the ecological communication of South African wildlife receives more attention in the next section. Further on in the text, I outline how ecological communication for an inclusive environmental sector is socially just and legally required.

Audience considerations in ecological communication for inclusion and community engagement

Questions about ecological communication to the public and policy makers and how these audiences understand the environment have become increasingly important in this era of environmentalism being a global concern and social scientists increasingly probing the communicative aspects of environmental change (Comfort & Park, 2018). Consideration of the audience receiving environmental protection messaging has been lax in conventional environmental communication. Sometimes people are intentionally marginalized through politically motivated withholding of information and closed decision making (Briggs, 2006). In other instances, lax consideration of audiences arises from conventional communication practices that place emphasis on the ideal environmental communicator being detached from issues being communicated (Okoliko, 2024). South Africa's detached environmental communication context is perhaps unique with one of the contributing factors being the practices of an old exclusionary political regime being incidentally maintained throughout the democratic era due to lack of support for democratic policies while the prevalent communication practices seek to be objective but are unwittingly disconnected from their audience. The detachment is best reflected in the "save wildlife and save the world" type of environmental messaging (used in South Africa and beyond) which is abstract and does not convey the close connection between the wellbeing of people and that of the environment is the main reason for the urgent need to halt environmental degradation. Cox (2007) argues that conventional environmental communication constrains certain voices and communities.

My view is that it is difficult to inspire action with this objective "save wildlife" messaging that does not convey the human urgency of the intervention being communicated but rather seems to be aimed at wildlife hobbyists that are interested in animal welfare. Being objective in environmental

communication seems counterintuitive considering that we are the ultimate beneficiaries of environmental conservation successes and will be the main casualties of its failure. Cox (2007) captured this sentiment succinctly in their essay arguing that communication about the crisis discipline that is wildlife conservation should ideally be also considered a crisis discipline (2007). Pezzullo (2024) added that solely framing environmental communication as a crisis discipline might be a reactionary approach with little room to look beyond crises. Approaching environmental communication as a care discipline embraces interconnection and interdependence between people the environment along with related limits (Pezzullo, 2024). Environmental communication as a care discipline would thus focus on mitigating environmental degradation alongside honoring people and the environment (Pezzullo, 2017).

Conventional environmental communication's lax consideration of how to get people involved in environmental issues is contrary to environmental communication's aim. Okoliko (2024) argues that environmental communication aims to encourage people's support for environmental protection actions and thus it is important to understand people for this goal to achieved. Solís-Rojas (2024) suggests that approaching environmental communication as a discipline of care might help reconstruct its role in the global south. If we are to approach environmental communication as a care discipline within South Africa's multicultural and exclusionary contexts, then one of the ways would be to consider that the audience's cultural identity is tied to wildlife and this complex connection is seldom reflected in environmental management planning and communication. With care as a point of departure, environmental communication can be made affective through framing it according to local cultural perspectives and in the audience's preferred languages when this audience multicultural/multilingual.

Considering that language and culture are linked (Manne, 2003), ecological communication for a multilingual citizenry is also communication to a multicultural audience. Ecological communication generally tends to be tied to multiple social issues including culture and politics (Christensen, 2018). Thus, conservation in a cultural landscape requires an understanding of the different cultures for it to be effective (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, 2018), and so should communication of this conservation in such a landscape. The communication element of South Africa's exclusionary environment sector can improve its efficacy by incorporating cultural understanding. The work reflected upon here had outputs for environmental management practitioners and Indigenous knowledge custodians respectively while using cognizance of South African languages and/or cultures to base ecological communication to different audiences, and also contributing to inclusion and community engagement in South Africa's environment sector. Pezzullo's (2017, 2024) care aspect of environmental communication in the instance of the current work extends to communication tailored to those tasked with management of the environment in addition to the multilingual/multicultural citizenry affected by environmental management decisions.

Ecological communication's target audience generally varies depending on the environmental issue being communicated, its location, and the people it affects. Such audience considerations contribute to shaping environmental communication. The communication under consideration here was mainly shaped by the audience's culture and language along with additional consideration of the target audience being largely excluded from their country's environmental management processes. There are other examples of audience consideration shaping environmental communication in South Africa. Among these examples is the work of Mkize et al. (2003) who studied IsiXhosa language naming practices for insects in the Eastern Cape province with the intention of publishing material that would enable effective communication about insects of agricultural, cultural, domestic, or medical importance between communities (rural and suburban) and community development workers. Considering that insects can be both a pest and an animal of utility value for people, it is important that communication about them (among different stakeholders) is directed at the correct species to avoid problems that may potentially arise from misidentification of species due to Indigenous cultural naming practices' tendency to group multiple similar looking species

under one name. This work of Mkize et al. (2003) and some of the work that this paper reflects upon employing a collaborative approach to social inclusion and community engagement where ecological communication outputs are mainly aimed at the focal community and they are based on perspectives of the community.

A different approach, solely aimed at environmental managers as a target audience, employed by Mutshinyalo & Siebert (2010) explored VhaVenḓa myth and superstition as a means of wildlife protection through culturally imposed restrictions on the use of certain wildlife. Their work made environmental managers aware of the existence of Indigenous approaches for biodiversity conservation in the absence of modern conservation practices. Mutshinyalo and Siebert (2010) communicated the existence of protective cultural practices to environmental managers so they might consider possibilities of integrating them into existing modern environmental management planning. The affectiveness of this approach lies in social inclusion benefits of making marginalized protective cultural practices and perspectives available for integrative environmental management.

Although approaches used in social inclusion and community engagement lead to ecological communication outputs aimed at different audiences, they also have value in inclusion of marginalized communities and their perspectives in environmental management. Regardless of whichever social inclusion and community engagement approach is employed, marginalized environmental perspectives are becoming more readily available to draw upon and include in environmental management as South African legislation intended it to be. In the next section, I reflect on the inclusion of marginalized perspectives in conservation planning.

Ecological communication with a legal purpose: from community engagement to inclusive environmental law

The discussed research demonstrated ecological communication going beyond social inclusion and community engagement, and aligning with democratic environmental legislation provisions that have mostly been ignored or unsupported. In addition to its democratic legislation alignment, this research contributes to advancing environmental communication as a care discipline. Since environmental communication falls within the public participation part of environmental management, South African environmental legislation can be said to have the elements of care needed to approach environmental communication as a care discipline as discussed by Pezzullo (2017, 2024). South Africa's National Environmental Management Principles outlined in the National Environmental Management Act provide for environmental management capacity development opportunities that are inclusive of all citizens, management that meets the needs of everyone and decision making that takes Indigenous forms of knowledge into consideration (Republic of South Africa, 1998). This is in line with what Pezzullo (2017) outlined as honoring people and the environment while focusing on protecting the environment when you approach environmental communication as a care discipline. The embracing of interconnection and interdependence mentioned by Pezzullo (2024) is reflected in South African environmental legislation's provisions for decision making that takes into consideration all forms of knowledge.

The incidental contributions to the knowledge pool of previously ignored and understudied environmental perspectives achieved through this research and other similar projects have demonstrated the value of designing environmental communication that is relatable to people. Incorporating these vernacular ways into environmental management processes would be aligned with the South African National Biodiversity Strategy and Action Plan (Republic of South Africa, 2015), the United Nations Declaration on the Rights of Indigenous Peoples Protection (United Nations, 2007), Kunming-Montreal Global Biodiversity Framework Target 17 (Convention on Biological Diversity, 2022), and Sustainable Development Goals (11, 15, and 16) (United Nations, 2015). Ultimately, communicating wildlife in vernacular or any way that makes environmental communication relatable by approaching it as a care discipline improves people's opportunities to learn about the environment as intended by South African legislation.

In closing, the story of South African ecological communication and the affective encounters it holds is missing a happy ending where the affective translates into effective integrative environmental management. Unless the social inclusion and community engagement knowledge pool accumulated from devising affective ecological communication interventions are seen as a knowledge pool for integrative environmental management by South African environmental policymakers, the environmental sector will continue to mirror the contrasts that characterize many spheres of life in the country where policy encourages inclusivity, but actions maintain pre-democratic exclusion.

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Ethics statement

The Traditional Healers Organisation of South Africa agreed to its members being approached for participation in this research project. Informed consent according to North-West University's Health Research Ethic Committee's guidelines was obtained from the participants of this study. The scope of human participation in this study was approved by North-West University Biodiversity and Ecology Research Ethics Committee. Ethics approval for this study was obtained from the North-West University Animal Care, Health and Safety Research Ethics Committee (Ethics number: NWU-00185-18-S5) and Hasselt University Social-Societal Ethics Committee (Reference: REC/SMEC/VRAI/189/127). The research conducted complies with the Nagoya Protocol on Access and Benefit-sharing (UID: ABSCH-IRCC-ZA-257320-1).

ORCID

Fortunate M. Phaka http://orcid.org/0000-0003-1833-3156

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