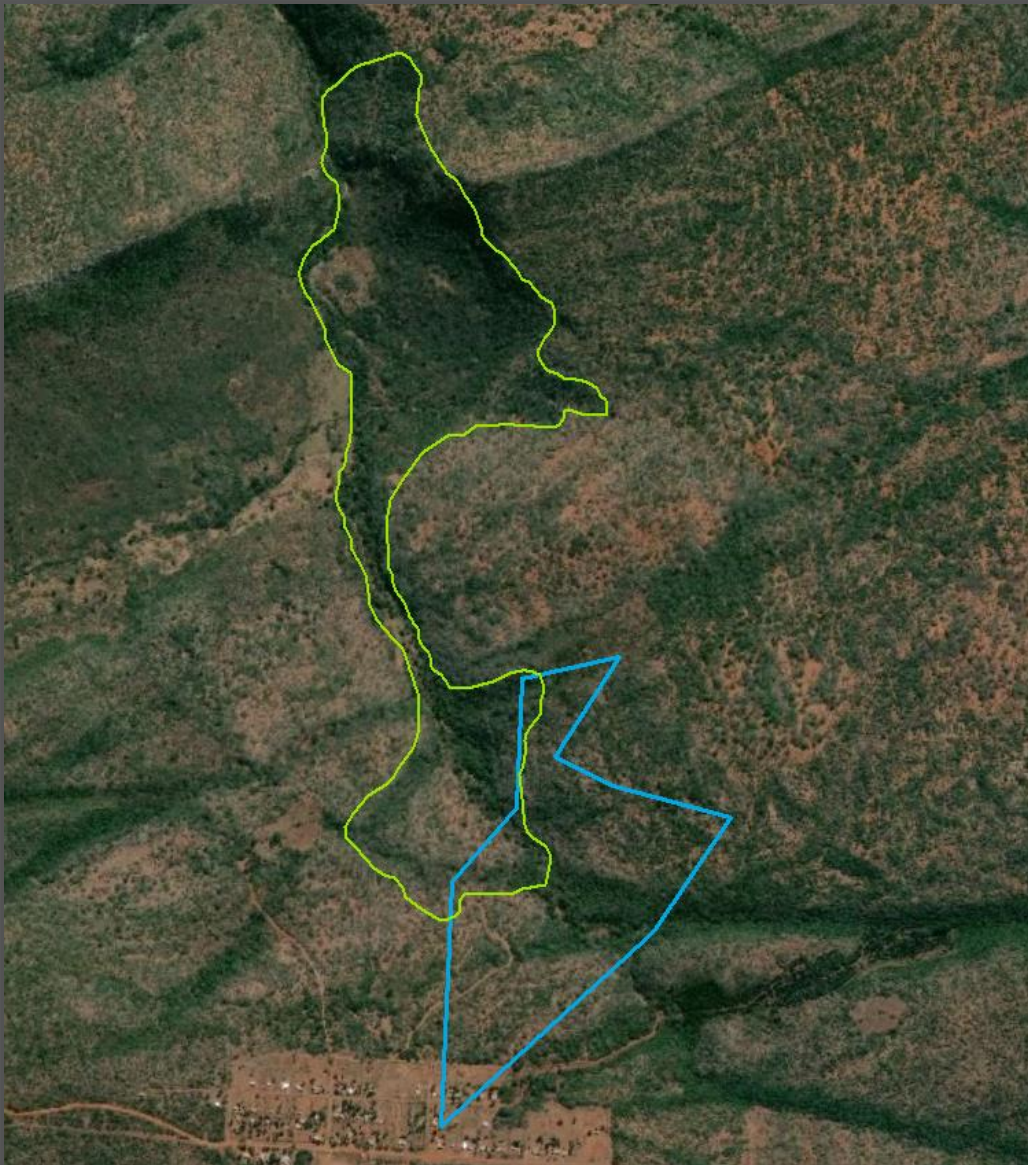


Correcting the shape of SVcb 22 VhaVenda Miombo

Technical proposal by Anisha Dayaram with data supplied by Erich van Wyk



Compiled 23/07/2020

Background and Literature

In the early 2000's a population of *Brachystegia spiciformis* was located by staff at the National Herbarium (SANBI), making this the southern-most record of a population of *B. spiciformis* and the first record of a population of this species in South Africa (Van Wyk and Hurter 2000, Hurter and Van Wyk 2001, Hahn 2002). In Mozambique and Zimbabwe, where this and other genera of the species occurs, the taxa dominates in a community of vegetation often referred to collectively as Miombo. Hence, during the development of the National Vegetation Map (version 2006), the location of this collection of plant communities dominated by the *B. spiciformis* population was delineated and classified as



Figure 1 *Brachystegia* woodland and understorey



Figure 2 *Brachystegia* Flush, Vhavenda Moimbo

VhaVenda Miombo ('VhaVenda' owing to the location within the area dominated by Venda people).

Interestingly, Venda people in the area referred to the species as 'mutiswa' or 'the one that is left behind' (Hahn 2002), appearing to reference the fact that this population is disjunct from the main distribution of the taxon north of the Limpopo River. It is thought that the community of vegetation associated with the population is not a relic of Miombo woodland in Zimbabwe, but rather a relic of an ancient tropical flora associated with the

Eastern highlands that extended from Zimbabwe into the Soutpansberg. As such, the phylogenetic history would justify the unit as a vegetation type within the National Vegetation Map classification system.

The location and shape of VhaVenda Miombo in NVM 2006-2018

In 2019 we examine the location and shape of VhaVenda Miombo in the 2018 National Vegetation Map. The shape did not seem to follow any natural landscape features described as characteristic of the vegetation type under the type description. We consulted with Erich Van Wyk, author of the vegetation type in 2006, and confirmed that the shape in 2006-2018 National Vegetation Map appeared to have been shifted off the true location of the vegetation type, possibly due to a shift in GPS co-ordinates.

We wished to correct this error in the NVM by remapping VhaVenda Miombo using satellite imagery from Google Earth and the NGI 50cm colour imagery, field notes and literature taken by Erich and his colleagues. Erich noted that the data used to delineate the vegetation type was collected south of the sharp ridge to the north of the village. The current locality was too close to the village and the topography was incorrect (Figure 3, blue outline). Furthermore, the current polygon did not capture the dense woodland communities. Hence, we delineated new boundaries for the vegetation type (Figure 3, green outline). We also searched for localities of *B. spiciformis* on BRAHMS online to help

guide our mapping. Two collections in 2000 and 2003 were used to delineate the southern-most boundary of the new delineation. It is important to note that while the presence of *B. spiciformis* does not define the extent of the VhaVenda Miombo vegetation type, we included the localities so

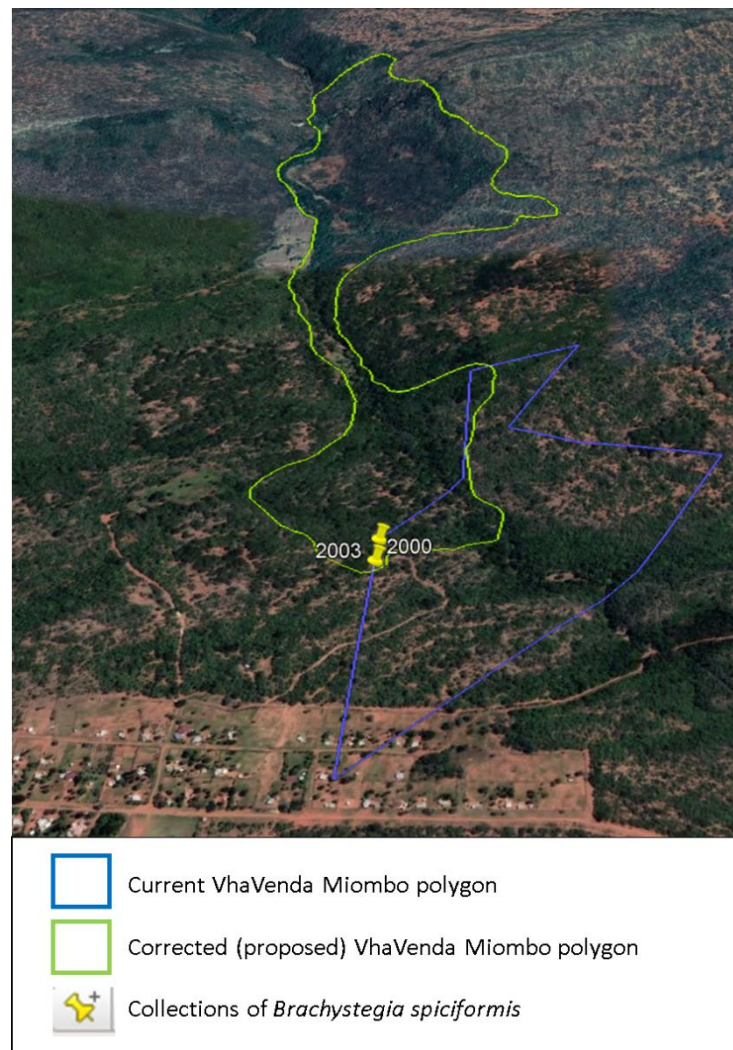


Figure 3. Delineation of the current and proposed polygons for VhaVenda Miombo.

that our delineation was inclusive until additional fieldwork can be done to refine the boundary further.

Conclusion

The location and extent of VhaVenda Miombo was incorrectly captured in the 2006 National Vegetation Map and persisted in subsequent versions. We propose the new delineation presented in this report (spatial data attached) is used to replace the incorrect polygon.

References

- Van Wyk, E. & Hurter, P. J.H. 2000. *Brachystegia spiciformis* an exciting discovery. SABONET News 5(3): 170
- Hurter, P. J.H. & Van Wyk, E. 2001, First distribution recorded for *Brachystegia spiciformis* (Caesalpinioideae) in South Africa. Bothalia 31(1): 43–44.
- Hahn, N. 2002. A second species of *Brachystegia* for South Africa. SABONET News 7(2): 110

National Vegetation Map Proposed Edits Control Sheet

This control sheet is designed to help the VEGMAP Project team at SANBI keep a long term record of evidence submitted for edits to the National Vegetation Map. Kindly complete Sections A and B1. Please contact us if you need assistance when completing the form. See Appendix A for guidance on proposing edits, types of edits and accepted data required for a motivation. Any proposal for changes to the National Vegetation Map must be accompanied by this control sheet.

SECTION A: Description of edit

Vegetation type/types affected	SVcb 22 VhaVenda Miombo
Type of Edit (tick)	☐ Major ☒ Minor ☐ Other _____
Brief description: The shape of VhaVenda Miombo in the 2006 to 2018 National Vegetation Maps did not seem to follow any natural landscape features described as characteristic of the vegetation type under the type description. We consulted with Erich Van Wyk, author of the vegetation type in 2006, and confirmed that the shape in 2006-2018 National Vegetation Map appeared to have been shifted off the true location of the vegetation type. We wished to correct this error in the NVM by remapping VhaVenda Miombo using satellite imagery, field notes and literature. We propose the new delineation presented in this report (spatial data attached) is used to replace the incorrect polygon.	

SECTION B: Description of review process

B1: To be completed by the Proposer

Name of person/s proposing edit	¹ Erich van Wyk and ² Anisha Dayaram
Organisation and role	¹ SANBI, Deputy Director National Herbarium ² SANBI, Vegetation Scientist
Nature of evidence provided to justify change	☒ Site visits ☒ Desktop delineation ☐ Published technical report ☐ Peer Reviewed Article ☒ GIS spatial data
Change criteria cited in the motivation	☒ MN1 ☐ MN2 ☐ MN3 ☐ MN4 ☐ MN5 ☐ MN6 ☐ MJ1 ☐ MJ2 ☐ MJ3

B2: To be completed by the Reviewer/s

Name of 1 st reviewer	Dr Andrew Skowno
Organisation and role	SANBI, NBA Science lead, Chair of NVMC
Member or associate of the National Vegetation Map Committee	☒ Yes ☐ No
Does the proposal meet the criteria cited for the proposed change?	☒ Yes ☐ No
Approved for incorporation in a version of the National Vegetation Map?	☒ Yes ☐ No ☐ Provisional acceptance, pending changes to proposal
Recommendations for strengthening proposal: This proposal is robust and requires no further work	

APPENDIX: The process for submitting updates and revisions

*extracted from Section C of The National Vegetation Map Handbook: A guide for users and contributors

Guidelines for submitting proposed changes, updates and revisions to the National Vegetation Map of South Africa, Lesotho and Swaziland.

A decision has been made for the National Vegetation Map of South Africa, Lesotho and Swaziland (NVM) to be a dynamic map that can be revised and updated periodically. This ensures that the NVM will remain relevant to conservation planners and other users requiring current data at finer scales. However, a rigorous review of evidence justifying the changes proposed is required and these accepting proposals may require complex decisions. To simplify and make the process more transparent, a set of guidelines to steer the decision-making process is provided. These will aid the National Vegetation Map Committee in evaluating proposals within a transparent, defensible and justifiable framework. It also serves to inform proposers of the minimum requirements needed for any revision. Following these guidelines will streamline the process of submitting proposed changes and getting them approved, or make explicit the reasons for rejection.

Steps required to make changes to the existing NVM involves:

1. Contact the VEGMAP Project team and have a discussion about your ideas regarding potential updates. In this discussion, the points regarding the key changes will be summarised by the VEGMAP team.
2. The VEGMAP team will provide suggestions (and similar case studies) as to the process that will need to be followed and what the National Vegetation Map Committee would require to consider and implement the suggested changes.
3. The proposer, with or without help from the VEGMAP team, and in collaboration with a local vegetation expert, collates data for the refinement of the vegetation map (see Table 1 for guidelines on proposed minor and major changes). Note that a proposal can be submitted without input from the VEGMAP team, but this is discouraged as it may lead to unconsidered problems, inadequate field data and justification, and thus a rejection or the requirement of further field data and motivation.
4. The proposal is refined and prepared by VEGMAP Team for submission to the Biome Lead for review. The VEGMAP Team then makes a decision regarding whether further work needs to be done to develop the proposal/data with the local expert or user, based on advice from the biome lead/s.
5. User works with VEGMAP team to refine the new data before resubmission to the NVMC for a final decision.
6. The data are prepared and integrated into a test version of the National Vegetation Map.
7. A test version of the NVM with edits is sent to the National Vegetation Map Committee for review.
8. The Committee reaches a decision: these are done annually.
9. The edits are incorporated into the map, descriptions are edited/created and user is assigned credits for affected polygons.
10. A Beta version of the spatial dataset is uploaded onto Biodiversity Advisor for public comment for at least 4 months.
11. Comments on the beta version are addressed and a final version of the NVM is released online.

Table 1 outlines the types of changes which may be proposed to the NVM, ways in which changes can improve the NVM, issues that may arise during implementation, requirements that must be met for consideration and the approval process for implementation. Types of changes have been categorized into minor and major changes according to the degree that they may affect the integrity of the map.

- Minor changes require sound justification, but a peer reviewed publication is not mandatory. Smaller changes may not require committee approval and may be processed by the VEGMAP Team.
- Major changes will only be considered with an accompanying published peer-reviewed article and these decisions must be taken to the committee for consideration. Publication does not guarantee

that changes will be accepted. If a publication is being developed with new data, we recommend that the VEGMAP team must also have been involved in the paper, either in the planning, writing or review phases.

There are important implications that arise from the changes to the NVM: scientific, legal, political and in some cases personal. . The National Vegetation Map Committee will consider these issues, using transparent protocols to ensure a consistent and defensible foundation for any decisions taken. These are outlined in Table 2.

Table 1 Types of changes and proposal requirements

No	Types of change	Benefit	Issues	Requirements	Process
	Minor Change				
MN1	Boundary shifts (realignment)	Improved spatial accuracy	The scale of the affected boundary line, and resultant gains and losses of extent will result in changes to threat status and protection levels which will have to be recalculated.	• Motivation, • GIS shapefiles and data • Must be complete (not stop at cadastral boundaries)	A proposal must be submitted to SANBI via email. The decision will be reviewed internally by the SANBI VEGMAP team.
MN2	Creation of a sub type/community within an existing vegetation type	Improved accuracy of classification and spatial data	Inconsistency in the scale at which subtypes are accepted could influence the consistency in the classification.	• Motivation • GIS shapefiles and data or description of units (polygon #) • Publication in peer review/fine-scale biodiversity plan, Environmental Management Framework or Strategic Environmental Assessment	A proposal must be submitted to SANBI via email. The decision will be reviewed internally by the SANBI VEGMAP team.
MN3	Change in Vegetation type name (without spatial or description changes) *Special circumstances for this change are described in the Handbook	Correction in spelling or name better reflects the description of the Vegetation Type e.g. Rüens to Ruens	Small mismatches with previous versions of the NVM will arise when comparing database tables.	• The proposed new name and motivation must be submitted. • Must meet criteria for name changes. See Handbook.	A proposal must be submitted to SANBI via email. The decision will be reviewed internally by the SANBI VEGMAP team.
MN4	Change in vegetation type description e.g. list of endemic species	Improvement in more accurate description of a vegetation type and more accurate description of dominant species, endemics etc.	Implications minor or major. Descriptions could change again if boundary shifts later. Most updated names of species must be used. May conflict with text in book	Paper with plot data and environmental data supporting description or if change is just for change in species dominance plot data with species abundance.	A proposal must be submitted to SANBI via email. The decision will be reviewed and decided by the committee.
MN5	Boundary shifts when neighbouring country or coastal borders are redefined	Map remains updated to the latest country boundaries	New areas which may not previously have been included in the map may not have any data.	• Motivation, • GIS shapefiles and data	A proposal must be submitted to SANBI via email. The decision will be reviewed internally by the SANBI VEGMAP team.
MN6	The creation of new polygons of an existing vegetation type that may be disjunct from existing polygons of that type and beyond a reasonable* range extension or reduction.	Improved accuracy of classification and spatial data	Scale of boundary lines, gains and losses of extent, changes to threat status and protection levels, classification consistency	• Requires a strong motivation, • GIS geodatabase files or description of units (polygon #), • Publication in peer review/Formal technical report such as a fine-scale biodiversity plan	A proposal must be submitted to SANBI via email. The decision will be reviewed and decided by the committee.

	*to be determined by the NMVC on a case by case basis				
Major Change					
MJ1	Removal of a Vegetation type from the classification system or downgrading a type to a level below a vegetation type e.g. subtypes.	Removal of spurious types. The polygons of the removed type will be dissolved into remaining types.	Usually associated with boundary shifts (see above) and affects classification consistency	- Requires a strong motivation, - GIS geodatabase files or description of units (polygon #), - Publication in peer reviewed journal	A proposal must be submitted to SANBI via email. The decision will be reviewed and decided by the committee.
MJ2	Create new vegetation type (replace existing) or upgrading of a subtype to a Type.	Improved accuracy of classification and spatial data	Scale of boundary lines, gains and losses of extent, changes to threat status and protection levels, classification consistency,	- Requires a strong motivation, - GIS geodatabase files or description of units (polygon #), - Publication in peer reviewed journal	A proposal must be submitted to SANBI via email. The decision will be reviewed and decided by the committee.
MJ3	Reassignment of a community in a vegetation type from an existing vegetation type to another existing vegetation type	Improved accuracy of classification	Usually associated with boundary shift (see issues above), classification consistency	- Motivation - GIS shapefiles and data or description of units (polygon #) - Publication in peer reviewed journal - Fine-scale biodiversity plans, Environmental Management Framework or Strategic Environmental Assessments can be submitted	A proposal must be submitted to SANBI via email. The decision will be reviewed internally by the SANBI VEGMAP team. Only peer reviewed literature will be accepted.

Table 2 Important issues that must guide revisions

Issues	Description	Proposed Solution
Stability vs. Improvement	The update process must allow for legitimate improvements while maintaining a stable vegetation map.	Major revisions will be released so that they are aligned with the NEM:BA listing of threatened ecosystems, while smaller changes (updates) will be allowed between listing events.
Defensibility	Scientific basis for change must be maintained;	Minor Changes: Should be supported by peer reviewed literature or official reports such as biodiversity plans, EMFs, SEAs PhD, MSc or government reports. Major Changes: Only peer reviewed literature will be accepted.
Maintain consistency	Maintaining consistency in classification hierarchy and spatial scale used within each biome. These may differ significantly.	The Committee and the VEGMAP Team needs to keep in mind the scale and classification "depth" for each biome
Alignment with other Realms	Ecosystem classification and mapping is a major focus of the NBA and as a result there will be an opportunity to discuss the integration of vegetation map with the estuary map, coastal and marine habitat map and wetland map. Alignment with catchment boundaries will also be advantageous where possible.	The National Ecosystem Classification Committee will develop a joint approach to integration of ecosystem type maps across all realms. The scale of mapping will guide the process in some instances.
Spurious changes	Systems need to be established to avoid, ad hoc updates and changes that could be considered politically or commercially motivated.	The NMVC will decide on all changes to the map apart from purely technical corrections. Submissions that meet the requirements but are deemed to be spuriously motivated will not be accepted.
Precedents set in previous versions / updates	The original veg map was a ground-breaking product, multi-author product which inherited a few inconsistencies. The updates and revisions should aim to reduce these inconsistencies, not perpetuate them.	The VEGMAP Team at SANBI in conjunction with the National Vegetation Map Committee needs to take cognisance of the existing inconsistencies and propose potential solutions for future updates.