



## 3<sup>rd</sup> AGM of the South Africa Wetland Society

Monday 20 October 2014 at 5pm,  
National Wetlands Indaba, Alpha Conference Centre, Lanseria, Gauteng

No.	Item	Action
1.	<b>Welcome</b> <ul style="list-style-type: none"> <li>Piet-Louis Grundling (PLG) welcomed everyone to the 3<sup>rd</sup> AGM of the South African Wetland Society.</li> </ul>	P-L Grundling
2.	<b>Attendance Register</b> <ul style="list-style-type: none"> <li>All members of the society were requested to fill in the attendance register which was circulated (Appendix 1).</li> </ul>	All
3.	<b>Apologies</b> <ul style="list-style-type: none"> <li>See Appendix 1 for a list of apologies.</li> </ul>	All
4.	<b>Minutes of the Previous Meeting</b> <ul style="list-style-type: none"> <li>The minutes of the previous meeting were proposed and accepted with no changes (Proposed: P Fairall and Seconded: M de Fontaine).</li> </ul>	P-L Grundling
5.	<b>Matters Arising from the Previous Minutes</b> <ul style="list-style-type: none"> <li>There were no matters arising from the previous minutes.</li> </ul>	P-L Grundling
6.	<b>Additions to the Agenda</b> <ul style="list-style-type: none"> <li>None.</li> </ul>	All
7. 7.1	<b>Annual Report</b> <b>Presentation of the Chairperson's Annual Report</b> <u>General</u> <ul style="list-style-type: none"> <li>Indaba 2014 and this AGM represent the end of the first 2-year term of office of the first ever elected Board of Trustees of the Society.</li> <li>It is acknowledge by all the Trustees that it has been a busy and tough year considering the fact that all work has been done on a volunteer basis.</li> <li>Notable achievements for the year have seen the registration of the Society as a Voluntary Association (VA) at SACNASP as well as being asked by the Minister to nominate Dr H Malan to the Board of SACNASP.</li> </ul> <u>Wetland Field of Practice (FoP)</u> <ul style="list-style-type: none"> <li>Building on from the regional workshops a FoP proposal has been submitted to SACNASP for consideration.</li> <li>Thanks are extended to B Grant for driving this process and developing a draft FoP for the Trustees to review and comment on before submitting to SACNASP.</li> <li>It is important to note that out of discussions with SACNASP about the FoP, it is clear that Continuous Professional Development (CPD) will become compulsory in 2015 and going forward.</li> </ul>	P-L Grundling

	<ul style="list-style-type: none"> <li>The Society will make courses available to allow CPD points to be obtained by practitioners and the Education Committee has been tasked with addressing this important issue.</li> </ul> <p><b><u>Communication and Membership</u></b></p> <ul style="list-style-type: none"> <li>M de Fontaine was thanked by P-L Grundling for his tireless work in keeping Society members informed and up to date.</li> <li>In this regard M de Fontaine was presented with a certificate and gift as thanks for this work and hoped that he would still be available to serve as a Trustee if elected to the next Board.</li> <li>Regarding membership it was important to note that all members had paid their annual renewal fees and the Trustees thanked those for diligently doing so.</li> </ul> <p><b><u>The Society, Indaba and the Awards</u></b></p> <ul style="list-style-type: none"> <li>P-L Grundling noted that the Society has an important role to play and that if it was not for the Society that this year's Indaba and the Awards may not have happened.</li> <li>The National Wetland Awards were not stopped and did follow the process properly with the winners to be announced at the upcoming Gala Dinner.</li> <li>However, it was noted that the Awards must be given the due respect and recognition they deserve and that members of the wetland community must take the opportunity to nominate their peers.</li> </ul> <p><b>7.2 Adoption of the Chairperson's Annual Report</b></p> <ul style="list-style-type: none"> <li>P Fairall proposed that the Report be accepted and it was seconded by M de Fontaine.</li> </ul>	All
<p><b>8.</b></p> <p><b>8.1</b></p> <p><b>8.2</b></p>	<p><b>Financial</b></p> <p><b>Presentation of the Annual Financial Report</b></p> <ul style="list-style-type: none"> <li>P-L Grundling presented the Financial Report on behalf of the Treasurer J Taylor.</li> <li>It was reported that as of 24 September 2014 the bank account of the Society was at R51,633.58.</li> </ul> <p><b>Adoption of the Annual Financial Report</b></p> <ul style="list-style-type: none"> <li>P Fairall proposed that the Report be accepted and it was seconded by M de Fontaine.</li> </ul>	<p>P-L Grundling</p> <p>All</p>
<p><b>9.</b></p>	<p><b>Election of Trustees</b></p> <ul style="list-style-type: none"> <li>Voting for the election of Trustees for the period 1 November 2014 to 31 October 2016 was conducted using ballot papers submitted by proxy or direct voting at the AGM.</li> <li>The results of the election were ratified by an independent person not a member of the Society and the following Trustees were elected to the Board: <ul style="list-style-type: none"> <li>Garth Barnes (Independent - Gauteng).</li> <li>Craig Cowden (Ground Truth - KwaZulu-Natal).</li> <li>Paul Fairall (Emifula - Gauteng).</li> <li>Piet-Louis Grundling - Chairperson (WetRest / International Mire Conservation Group - Gauteng).</li> <li>Dean Ollis (Freshwater Consulting Group - Western Cape).</li> <li>Kate Snaddon - Vice-chairperson (Freshwater Consulting</li> </ul> </li> </ul>	All

	<p>Group - Western Cape).</p> <ul style="list-style-type: none"> <li>○ Damian Walters (Ikhwane Wetland Science - KwaZulu-Natal).</li> </ul> <ul style="list-style-type: none"> <li>● In accordance with Clause 10.1.5 of the society's Constitution, the three (3) Co-opted volunteer Board members elected were: <ul style="list-style-type: none"> <li>○ Marc de Fontaine - Secretary (Rand Water - Gauteng).</li> <li>○ Gary Marneweck (Wetland Consulting Services - Gauteng).</li> <li>○ Judith Taylor - Treasurer (EarthLife Africa - Gauteng).</li> </ul> </li> <li>● The newly elected Board of Trustees were wished well for their term of office by the outgoing Trustees.</li> <li>● The newly elected Board of Trustees expressed their thanks to the outgoing Board for their work done over the past two years.</li> </ul>	
<b>10</b>	<p><b>Constitution Amendments</b></p> <ul style="list-style-type: none"> <li>● In order to address the issue of domicile of the Society, the issue of changing domicile was discussed.</li> <li>● In the Constitution, the domicile is currently stated as: 19. DOMICILE 19.1. The domicile of SAWS shall be Rand Water, 522 Impala Road, Glenvista, Johannesburg, South Africa.</li> <li>● It was therefore proposed that the following amendment be made to the Constitution: 19. DOMICILE 19.1. The domicile of SAWS shall change from time to time and shall be confirmed for the forthcoming year annually at the Annual General Meeting of the Society.</li> <li>● This amendment was accepted by a majority show of hands by the Society members present at the AGM.</li> </ul>	All
<b>11.</b>	<p><b>Working Groups Report Back</b></p>	
<b>11.1</b>	<p><b>Best Practice Guidelines</b></p> <ul style="list-style-type: none"> <li>● To promote standards and quality of wetland work.</li> <li>● This can be achieved through the development of best management practice guidelines and the standardisation of tools/methods for wetland work.</li> <li>● Proposed focus areas of the society: <ul style="list-style-type: none"> <li>○ Inform members of existing methods / tools.</li> <li>○ Facilitate discussion on existing approaches, and aim for standardisation.</li> <li>○ Develop guidelines for selecting the right tool / method, and how to apply and interpret.</li> <li>○ Promote use of standardised set of tools / methods.</li> </ul> </li> </ul>	C Cowden / K Snaddon
<b>11.2</b>	<p><b>Membership &amp; Fundraising</b></p> <ul style="list-style-type: none"> <li>● As no tax exemptions can be given it is extremely difficult to raise any substantial funding.</li> <li>● The Society has applied for NPO status and thanks to G Marneweck for the work he is doing with SARS to get this done.</li> <li>● There are organisations that are willing to provide funds to the Society but they will not do so until the NPO status is finalized.</li> </ul>	P Fairall
<b>11.3</b>	<p><b>Liaison and Registration with SACNASP</b></p> <ul style="list-style-type: none"> <li>● B Grant gave feedback on the status of submission of the Wetland</li> </ul>	B Grant

	<p>FoP to SACNASP.</p> <ul style="list-style-type: none"> <li>The current hold up with review of this FoP is with the Board of SACNASP as there appear to be issues of how the Wetland FoP relates to other already registered FoP's within SACNASP.</li> </ul>	
<b>11.4</b>	<p><b>Wetland Delineation</b></p> <ul style="list-style-type: none"> <li>The Working Group has produced a Position Statement on wetland delineation.</li> <li>This was circulated for comment to the broader wetland community of practice for consideration and input (Appendix 2).</li> <li>Comments can be submitted to N Job.</li> </ul>	N Job
<b>11.5</b>	<p><b>Wetland Training &amp; Community of Practice</b></p> <ul style="list-style-type: none"> <li>Identify member training needs and define the different levels of training that members are able to undertake.</li> <li>Promote mentorship and peer review.</li> <li>Promote field visits aimed at discussing wetland issues, sharing experience and developing members' understanding relating to such issues. Include authorities who are reviewing EIA's in these field visits.</li> <li>Support the wetland forums and Indaba as a vehicle for learning for the wetland Community of Practice.</li> <li>Ensure quality assurance of wetland training through monitoring &amp; evaluation of existing training initiatives and training of training providers.</li> <li>Promote basic wetland training in all regions (lower level training has been identified as an immediate need to allow access/competence in existing higher level training).</li> </ul>	P-L Grundling
<b>12.</b>	<p><b>Marakele National Park AllWet Summer School</b></p> <ul style="list-style-type: none"> <li>The AGM was informed that the AllWet group of wetland researchers was planning for a Summer School interaction in November 2014.</li> <li>The aim of this was to bring those people interested in various wetland research activities together for a few days to discuss issues around wetland conservation and management.</li> <li>The venue would be confirmed but it was planned for the Marakele National Park, Tzaneen.</li> </ul>	J Sliva
<b>13.</b>	<p><b>Discussion of Additions to the Agenda</b></p> <p>None</p>	
<b>14.</b>	<p><b>Next Meeting</b></p> <ul style="list-style-type: none"> <li>The next meeting of the Society will be held at the next National Wetlands Indaba provisionally set for October 2015.</li> </ul>	All
<b>15.</b>	<p><b>Closure</b></p> <ul style="list-style-type: none"> <li>P-L Grundling thanked all who attended the 3<sup>rd</sup> AGM and hoped that they would enjoy the rest of Indaba 2014.</li> </ul>	P-L Grundling

**APPENDIX 2**  
**Position Statement on wetland delineation**

## South African Wetland Society wetland delineation working group - Summary

1. Wide variation exists within wetland ecosystems, but it is considered feasible to have a general set of criteria to guide and standardise delineation. Wetland delineation is a very well established practice, with a strong scientific and legally-defended base, especially in the USA (USACOE, 1987; National Review, 1995). There is evidence from within South Africa that the current national wetland delineation method (DWA, 2005) allows for identification and delineation of most wetlands, in most landscape settings, nationally. The method relates to the existing wetland definition in the NWA (Act 36 of 1998). The Working Group recommends that the method and underlying general principles are fundamentally sound.
2. The Working Group finds that in addition to strengthening the technical and best practice guidance of the DWA delineation manual, equal and urgent attention should be focused on:
  - strengthening the regulatory environment
  - training and accreditation
  - strategic prioritisation and support of development of further technical wetland soil identification techniques and wetland vegetation indicator manuals over the next few years. A goal is move away from general statements towards linking them to peer-reviewed research, and peer-reviewed guideline manuals such as those supported by the WRC.
3. The Working Group defines wetland delineation, in its simplest form, as the process of identifying the approximate boundary, in terms of soil, water and vegetation, of the wetland ecosystem.
4. Wetland delineation alone does not tell us much about the hydrological or other drivers of wetland presence. While it can provide an indication of the wetting regime of a wetland system, it does not provide information on the ecological state of the wetland, ecosystem services it may provide, wetland importance or how land use within the wetland or its hydrological catchment may alter the biophysical characteristics of the system. The Working Group strongly emphasises that a delineation alone will not answer land or water resource regulatory decisions. It is, however, a fundamental first step that needs to be undertaken in a defensible manner. This should be stated in any updates to the delineation manual and reflected in guidance by DWA, DEA and provincial authorities with respect to wetland assessment terms of reference and best practice.
5. The application of the delineation method by many practitioners has been poor, often lacking a body of evidence to support the findings, or revealing misinterpretation of the intent of certain indicators. The lack of appropriate accredited training remains a challenge. Wetland delineation is a multidisciplinary activity and the Working Group supports the principle that we can build an inclusive practice where individual practitioners from various appropriate scientific backgrounds can delineate. We support the notion that with adequate professional development, many wetland ecologists, biologists, botanists and soil scientists can reach an acceptable level of proficiency in delineation where they are able to work independently delineating the majority of wetlands. Importantly, that they furthermore will

have the ethics and knowledge of when to assemble a team of specialists to solve a particularly difficult case.

6. The standard of delineation reporting has often been poor. Often, little or no data is presented to support a particular finding and the fieldwork undertaken without rigour. Job (2008), the KZN Wetland Community of Practice (Cowden, 2011) and Collins (2012) offer recommendations on how to improve the quality of the delineation practice and reporting. These recommendations, subject to review, are supported by the Working Group.
7. There is uncertainty and contention around some of the indicators used in the wetland delineation method and the level of skills required. The soil and vegetation components of the current approach are lacking in some respects and these components can be improved and strengthened over time. Practitioners should be encouraged to record additional indicators such as hydrology driven geomorphological features, flow debris, geochemical evidence where appropriate such as salt encrustations, evidence of aquatic fauna such as aquatic rodent runs and crab burrows, and so on, to provide data to strengthen a particular finding. Appropriate resources should be allocated to adequately review and revise the existing wetland indicator plant lists and generate identification manuals to support these, drawing on current taxonomic studies and plant specialist expertise across all regions of the country and setting in place adequate structures to receive and manage ongoing peer review and updates from practitioners into the future, as this knowledge cannot be built within a once off, short term process. A key component of this should be the development of suitable peer-reviewed guideline manuals to support the further development of this process.
8. The Working Group strongly supports the idea of a single national framework (covering general principles, most wetlands / straightforward cases) supported by context-specific refinements to resolve current shortfalls in the method. A good example of this is the work by Job (2008) in the Western Cape and van der Waals (unpublished) for the Halfway House Granite Dome. Several other authors have also recorded useful inputs – the best available information should be reviewed.

The Working Group recommends the following specific to updating the manual:

- The manual needs to provide much more guidance in terms of field procedure and minimum reporting requirements for delineation.
- The manual needs to give much more explicit guidance for dealing with difficult wetland types, regions/sites.
- More explicit guidance needs to be provided in order to account for the regional context of the wetland being delineated.
- The scientific validity and practicality of specific indicators needs to be reviewed.
- The wetland indicator status of individual plant species needs to be reviewed.
- Wherever possible, scientific information in the delineation manual should be referenced, and practitioners should be encouraged to include citations (linked to statements in the body of the document, not as a reference list).

**South African Wetland Society**  
**Position Statement on Wetland Delineation**  
Working Draft May 2014

### **South African Wetland Society**

The Society's vision and mission is as follows:

- "Our vision is to build and promote excellence, professionalism and ethics in the Wetland Community of Practice of South Africa."
- "Our mission is to develop and maintain professional standards and best management practices of subscribed wetland practitioners in South Africa in order to promote wetland science, conservation and management through accreditation, collaboration and self-regulation of all its members."

### **Role of the wetland delineation working group**

The Society's mission is specific in that supporting "subscribed wetland practitioners" is the focus of the Society's efforts to develop and maintain professional standards. This specific working group was convened in consideration of the need for the Society to represent its members' interests in discussions on a way forward for wetland delineation in South Africa.

### **Wetland definition**

This position statement deals only with wetland delineation, not riparian delineation.

The definition of "wetland" adopted by the Society is that of the South African National Water Act (Act No. 36 of 1998), whereby a wetland is defined as "land which is transitional between terrestrial and aquatic systems, where the water table is usually at, or near the surface, or the land is periodically covered with shallow water and which land in normal circumstances supports, or would support, vegetation adapted to life in saturated soil".

### **Background**

The history of wetland delineation guidance in South Africa is summarised as follows:

- *Wetland delineation manual* (US Army Corps of Engineers, 1987) Field methods, datasheets and guidance on problem sites, references to literature supporting the general principles of delineation.
- *Guidelines for delineation of wetland boundaries and wetland zones* (Kotze and Marneweck, 1999): developed as part of Reserve Determination methods in DWAF (1999) Resource Directed Measures for Wetland Ecosystems. The aim was to provide a set of guidelines which could be used nationally for the delineation of wetlands.
- *A practical field procedure for identification and delineation of wetlands and riparian areas* (DWAF, 2005): In recent discussions around wetland delineation in South Africa it has been



stated that existing guidance was narrowly developed specifically for the forestry industry. In the early 2000s the forestry industry was withdrawing extensive timber plantations from wetlands in response to requirements in the Water Act, and needed to undertake extensive wetland delineation in order to do so. There was a great need for practical field manual to guide this delineation. This need led to Kotze and Marneweck (1999) being updated to produce DWA (2005). Thus, it was not a case of methods developed specifically for forestry but rather that the development of DWA (2005) was precipitated by the extensive delineation which was taking place in the forestry industry.

- *Wetland Identification and Delineation Guidelines (DWA, 2008)*: A draft update of the wetland 2005 DWAF guidelines, including an updated wetland indicator plants list.

### **What is wetland delineation?**

Wetland delineation includes:

- confirmation of the presence (and size) of wetland; and
- an approximate determination of the outermost edge (boundary) of the wetland.

Wetland delineation should result in three things:

- A wetland boundary indicated on a map, and where necessary, in the field;
- A map that clearly identifies data collection points and the boundaries of the delineated wetland (topographic and aerial site maps are very helpful); and
- A report that explains how the boundary was determined.

### **Recommendations for strengthening policy / clarity on how delineation fits into wider wetland assessment context**

Wetland delineation alone does not tell us much about the hydrological or other drivers of wetland presence. While it can provide an indication of the wetting regime of a wetland system, it does not provide information on the ecological state of the wetland, ecosystem services it may provide, wetland importance or how land use within the wetland or its hydrological catchment may alter the biophysical characteristics, ecosystem processes and functionality of the wetland. Buffers cannot be set following delineation alone, and the Working Group strongly emphasises that a delineation alone will not answer land or water resource regulatory decisions. It is, however, a fundamental first step that needs to be undertaken in a defensible manner. This should be stated in any updates to the delineation manual and reflected in guidance by DWA, DEA and provincial authorities with respect to wetland assessment terms of reference and best practice.

### **Recommendations for training and field practice**

The application of the delineation method by many practitioners is often been poor. The lack of appropriate accredited<sup>1</sup> training remains a challenge. Wetland delineation is a multidisciplinary activity and the Working Group supports the principle that we can build an inclusive practice where individual practitioners from various appropriate scientific backgrounds can delineation rather than

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<sup>1</sup> SAQA, DWA or SAWS

one that partitions work out to various specialists. Furthermore we support the notion that with adequate professional development, many wetland ecologists, biologists, botanist and soil scientists can reach an acceptable level of proficiency in delineation where they are able to work independently delineating the majority of wetlands and have the knowledge know when to assemble a team of specialists to solve a particularly difficult example.

### **Accreditation of wetland practitioners**

South African legislation requires that all professional practitioners be registered under SACNASP. Proof of registration currently has no bearing on whether or not a person is suitably qualified to delineate wetlands. The Society is pursuing this under the auspices of a separate working group which will deal with both delineation accreditation and general wetland assessment accreditation, through the development of a Wetland Field of Practice. Under SACNASP, there is currently uncertainty whether the assessment of wetland soil conditions on a site fall within the field of a registered soil scientist only, however, the assessment of the wetland ecosystem, which includes the associated substrate, mostly falls under ecologists, aquatic scientists or botanists.

### **Framework for delineation ie general principals plus regionalization / context-specific guidance.**

Wide variation exists within wetland ecosystems, but it is considered feasible to have a general set of criteria to guide and standardise delineation. Wetland delineation is a very well established practice, with a strong scientific and legally-defended base, especially in the USA (USACOE, 1987; National Review, 1995). There is evidence from within South Africa that the current national wetland delineation method (DWAF, 2005) allows for identification and delineation of most wetlands, in most landscape settings, nationally. The Working Group recommends that the method and underlying general principles are fundamentally sound.

A number of additions need to be made to the method to guide delineators to take full cognisance of context (e.g. geology or climate), where additional or different indicators are required. The Working Group strongly supports the idea of a single national framework (covering general principles, most wetlands / straightforward cases) supported by context-specific refinements to resolve current shortfalls in the method. A good example of this is the work by Job (2008) in the Western Cape and van der Waals (unpublished) for the Halfway House Granite Dome.

### **Recommendations for refinement of the current delineation guidelines**

Currently the only way we have of assessing competence is to review if suitable methodology has been followed. The soil and vegetation components of the current approach are lacking in some respects and these components can be improved and strengthened over time. Additional indicators should be added. These indicators may not be primary indicators but would provide data that can strengthen a particular finding.

**Table 1: A summary of the key aspects of the current wetland delineation manual which require strengthening and/or the development of supplementary material**

Key aspects	Recommendations
<p>The manual needs to provide much more guidance in terms of field procedure and minimum reporting requirements for delineation</p>	<p>Guidelines should be provided for sampling intervals and reporting standards. The delineation should identify the range of soils and plant indicator species present and describe those that were used to identify the edge and distinguish between wetland and non-wetland. Adequately described field data points to justify the delineation should be captured using a GPS and indicated on the maps that are produced. In complex or more difficult cases where the boundary of the wetland is not clearly evident, this could mean more data points/plots or closer intervals of sampling, sufficient to provide an adequate and defensible delineation. The practitioner should apply their mind as to what is appropriate to prove they have investigated and concluded this. Therefore, guidance needs to be provided as to how the delineator should account for the required level of accuracy and the clarity of the indicators – the higher the level of accuracy required and the less clear the indicators, the greater the number of required data plots.</p> <p>Where necessary, particularly for the more complex/difficult cases, soil and vegetation sample plots should also be described and documented by the delineator outside of the wetland boundary and in representative areas within the wetland boundary in order to illustrate the difference found between wetland and non-wetland.</p> <p>All sample points used by the delineator to determine the boundary of the wetland should be recorded using a Global Positioning System (GPS). The GPS used during the study and the accuracy of the GPS should be stipulated in the reporting to highlight potential inaccuracies in the boundaries presented on the map.</p> <p>Reporting (see below)</p>
<p>The manual needs to give much more explicit guidance for dealing with difficult sites</p>	<p>See Table 2 which lists types of sites which are difficult to delineate and for each type recommends an approach for dealing with the site. For example, if a site has “difficult soils” but clearly evident wetland vegetation, it is not considered difficult to delineate. This relates to the question using more than one parameter / indicator.</p>
<p>More explicit guidance needs to be provided in order to account for the regional context of the wetland being delineated.</p>	<p>This applies particularly to difficult sites, where universal indicators may not be adequately expressed or are obscured by regional/local conditions. It is suggested the discipline of hydro-pedology will have a potentially important role to play in helping to place a wetland in the context of its micro-catchment.</p> <p>Once the guidelines for dealing with difficult sites have been strengthened, the need for regionalization of the delineation manual will need to be examined. For example, if a site has “difficult soils” but clearly evident wetland vegetation, it is not considered difficult to delineate. This relates to the question using more than one parameter / indicator.</p>
<p>The scientific validity and practicality of specific indicators needs to be reviewed</p>	<p>This should include indicators for soils, vegetation, landform, etc. Scientific validity should be assessed against the current scientific literature and where such literature is not available, using expert opinion/inputs. The practicality of the indicators needs to take into account that the indicators must generally be described rapidly in the field. If the description of indicators by the delineator results in unnecessary time being wasted without significantly adding to scientific rigour then practicality is called into question. This appears to be the case where the current manual specifies that hue, value and chroma be described in soil which is dry, but wetland soils are more often than not in a moist/wet state, and therefore soil material would need to be dried out in order to be described according to the manual. In the US, hue, value and chroma are generally described in a moist/moistened state for hydric soil descriptions. A key component of this should be the development of suitable peer-reviewed guideline manuals to support the further development of this process, particularly for soils and vegetation.</p>
<p>The wetland indicator value of</p>	<p>The list of hydric plant species compiled by Glen et al. specifies the indicator value of individual plant species and provides an excellent starting point. However, a need for</p>

individual plant species needs to be reviewed.	refinement has been identified, particularly in terms of identifying those species (e.g. <i>Imperata cylindrica</i> ) which are largely confined to wetland areas under low rainfall conditions but are much less confined to wetland areas under high rainfall conditions. Again, the development of suitable peer-reviewed guideline manuals in support of this is recommended.
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### Sites that are difficult to delineate / regional context

A number of additions need to be made to the method to guide delineators to take full cognisance of context (e.g. geology or climate), where additional or different indicators are required.

**Table 2. List of site contexts that are difficult to delineate.**

Type of "difficult site"	Approach
Some, or all, wetland indicators <i>are present</i> but it is a <b>non-natural wetland</b> (e.g. some dams, storm water drains, road islands)	<ul style="list-style-type: none"> <li>- Decide on the relative permanence of the change and whether the area can now be said to be wetland.</li> <li>- Time field observations during wet season, when natural hydrology is at its peak, to help to differentiate between naturally-occurring versus human-induced wetland.</li> <li>- Decide appropriate policy / management ie can certain land uses be allowed due to "low" wetland functional value, or does wetland perform key function despite being "artificial".</li> </ul>
Soil hydromorphic indicators and wetland vegetation <i>are present</i> but <b>no longer a functioning wetland</b> (e.g. wetland has been drained)	<ul style="list-style-type: none"> <li>- Look for evidence of ditches, canals, dikes, berms, or subsurface drainage</li> <li>- Decide whether or not the area is currently functioning as a wetland.</li> </ul>
Indicators of soil wetness <i>are present</i> but <b>no longer a functioning wetland</b> e.g. relict (ancient) or historical (no longer a wetland)	<ul style="list-style-type: none"> <li>- Decide whether indicators were formed in the distant past when conditions were wetter than they are today (It is recommended that scientifically defensible guidelines be provided for defining and identifying the "distant past").</li> <li>- Obtain the assistance of an experienced soil scientist.</li> </ul>
Some, or all, wetland indicators <i>are naturally absent</i> at <b>certain times of year</b> (e.g. certain annual vegetation or sites that annually dry out completely)	<ul style="list-style-type: none"> <li>- Thoroughly document soil and landscape conditions, develop rationale for considering the area to be wetland.</li> <li>- Recommend that the site be revisited in the wet season or during a period when it is wet.</li> </ul>
Some, or all, wetland indicators <i>are absent</i> due to <b>human disturbance</b> (e.g. vegetation has been cleared, wetland has been ploughed or filled)(In the case of ploughing or invasive alien species infestation, soil wetness indicators typically still present.)	<ul style="list-style-type: none"> <li>- Thoroughly document landscape conditions and any remnant vegetation, soil, hydrology indicators, develop rationale for considering the area to be wetland.</li> <li>- Certain cases (illegal fill) may justify that the fill be removed and the wetland rehabilitated.</li> </ul>
Indicators of water moving in the upper parts of the soil profile <i>are common but the vegetation shows no signs of indicator species</i> "difficult soils".	<ul style="list-style-type: none"> <li>-provide guidance in addition to that within "Specific Cases" of Appendix A of the DWA (2005) manual</li> <li>- Obtain the assistance of an experienced soil scientist.</li> </ul>
Indicators of soil wetness <i>are absent or weakly expressed</i> because soils are "difficult soils".	<ul style="list-style-type: none"> <li>-provide guidance in addition to that within "Specific Cases" of Appendix A of the DWA (2005) manual</li> </ul>

### Recommendations for best practice in reporting

The standard of delineation reporting has been poor. Often, little or no data is presented to support a particular finding and it appears as though the fieldwork done by the practitioner work was done with little rigour. Job (2008) and the KZN Wetland Community of Practice (Cowden *et al*, 2011) offer

good recommendations on how to improve the quality of the delineation practice and reporting. These recommendations are supported by the Working Group and should be included as guidelines in an update to the delineation manual. The reporting should be comprehensive enough to allow an independent wetland specialist reviewer to provide comment on the study without needing to visit the site. Wetland delineation reports should include the following information as a minimum:

- A description of how and when the delineation was done;
- A description of the catchment, landscape, landscape position, topography (slopes – concave, convex, flat etc., and slope changes), vegetation, soils and hydrological conditions including a summary of the available information used to determine the extent of wetland habitat;
- Where appropriate, the incorporation of field datasheets as appendices which should include a description of site conditions of representative sample points that adequately describe the delineation. In some cases, particularly for difficult sites, the sample points should be described from both inside and outside the delineated wetland boundary; and
- Site maps identifying the boundary of the wetland within the study area, plus an indication if the wetland extends outside the site boundary, *albeit* only at a desktop level if access is restricted or difficult in those areas, and the location of all data collection points recorded during the study. This should also include Information on the type and date of imagery used to support the delineation (see SANBI, 2012).

## References

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- Job, N. 2008. Report on the application of the Department of Water Affairs and Forestry wetland delineation method to wetlands of the Western Cape. WRC Report K8-718.
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