Supplementary Material 1: Molecular and morphological assessments for the identity of Australian *Acacia* species collected in South Africa: a) from naturalised populations not previously assessed; and b) from Damara Farm near Malmesbury in South Africa.

BLAST hits for each gene region are listed in order of statistical support based on BLAST Expect values (E), which is a parameter that describes the number of hits one can "expect" to see by chance when searching a database of a particular size. Discrepancies between putative field identifications and BLAST results were considered as representing unresolved taxonomies, unless both genes retrieved the same taxon with high DNA sequence similarity and high statistical support (E=0). Each specimen from Damara Farm was collected from a different group of planted individuals. However, identities could not be tied to planting records as the report of the trial had no map of what was planted where (Gibbs, 1998). Species that were listed in Damara Farm planting records are indicated in bold. If one of our samples matched the identity of one species with a Genbank voucher specimen with high DNA sequence similarity (≥ 99%) and the putative species was in the planting record, then we considered it to have have been identified correctly. Based on the results below, it appears that some species might have been planted in several groups as they appear to be the same genetic entities (i.e. Taxon in the table). When this comparison was linked to morphology, there seemed to be ~18 morphospecies recorded here. Colleagues are busy collecting comprehensive herbarium specimens (i.e. that all include reproductive features from the same tree) and these will be used in future to confirm identities.

References

Gibbs, L. (1998) West Coast dryland forestry trials: as part of the species provenance and demonstration trials in arid zones to establish potential for cummunity development, Report UST 4/97-2. pp. 20. Stellenbosch University, Stellenbosch

Le Roux, J.J., Strasberg, D., Rouget, M., Morden, C.W., Koordom, M. & Richardson, D.M. (2014) Relatedness defies biogeography: the tale of two island endemics (*Acacia heterophylla* and *A. koa*). *New Phytologist,* **204,** 230-242.

Table a)

| **Field identification cross-checked with literature** | **Locality** | **Lat** | **Long** | **ETS for putative species on Genbank?** | **ETS Genbank accession number from this study** | **Genbank ETS hit 1** | **Genbank ETS hit 2** | **Genbank ETS hit3** | **psbA-trnH for putative species on Genbank?** | **psbA-trnH Genbank accession number from this study** | **Genbank psbA-trnH hit 1** | **Genbank psbA-trnH hit 2** | **Genbank psbA-trnH hit 3** | **Proposed identity** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *A. adunca* | Bien Donne Farm | -33.8442 | 18.9820 | Yes | MH488102 | *Acacia filicifolia (98%)* | *Acacia falciformis (98%)* | *Acacia neriifolia (98%)* | Yes | MH488078 | 1*Acacia daphnifolia (95%)* | *Acacia neriifolia (99%)* | *Acacia colei (98%)* | *Acacia* indet. (does not support field identification) |
| *A. aneura* | Paarl Arboretum | -33.759755 | 18.978144 | Yes | MH488103 | *Acacia aneura (99%)* | *Acacia ayersiana (99%)* | *Acacia hemiteles (99%)* | Yes | MH488079 | *Acacia resinosa (100%)* | *Acacia coolgardiensis (100%)* | *Acacia crassicarpa (100%)* | *Acacia* cf. *aneura*  (psbA-trnH hit 4 was *A. aneura* with 100%) |
| *A. crassiuscula* | Newlands | -33.968780 | 18.447675 | No | MH458446 | *Acacia gonophylla (95%)* | *Acacia extensa (95%)* | *Acacia shuttleworthii (93%)* | Yes | na | na | na | na | *Acacia* indet. (however too little certainty to say it does not support field identification) |
| *A. cultriformis* | Agricultural Research Council Offices, Vredenburg, Stellenbosch | -33.94847 | 18.83741 | Yes | MH014109 | *Acacia cultriformis (100%)* | *Acacia falciformis (99%)* | *Acacia dorothea (99%)* | Yes | MH014131 | *Acacia colei (99%)* | *Acacia dealbata (98%)* | *Acacia mearnsii (98%)* | *A. cultriformis* |
| *A. cultriformis* | Colesberg | -30.7248 | 25.0916 | Yes | MH014104 | *Acacia cultriformis (100%)* | *Acacia falciformis (99%)* | *Acacia dorothea (99%)* | Yes | MH014126 | *Acacia colei (98%)* | *Acacia spectabilis (98%)* | *Acacia dealbata (98%)* | *A. cultriformis* |
| *A. cultriformis* | Grahamstown Botanical Garden | -33.3185 | 26.5220 | Yes | MH014105 | *Acacia cultriformis (100%)* | *Acacia falciformis (99%)* | *Acacia penninervis (99%)* | Yes | MH014127 | *Acacia colei (98%)* | *Acacia spectabilis (98%)* | *Acacia dealbata (98%)* | *A. cultriformis* |
| *A. cultriformis* | Bloemfontein | -29.12249 | 26.19053 | Yes | MH014103 | *Acacia cultriformis (100%)* | *Acacia falciformis (99%)* | *Acacia dorothea (99%)* | Yes | MH014125 | *Acacia colei (98%)* | *Acacia spectabilis (98%)* | *Acacia dealbata (98%)* | *A. cultriformis* |
| *A. fimbriata* | Grahamstown | -33.3181 | 26.5288 | Yes | MH458468 | *Acacia neriifolia (100%)* | *Acacia falciformis (99%)* | *Acacia pustula (99%)* | Yes | MH488099 | *Acacia daphnifolia (98%)* | *Acacia colei (98%)* | *2Acacia stereophylla var. stereophylla (97%)* | *Acacia* indet. (does not support field identification) |
| *A. floribunda* | University of the Witwatersrand | -26.18965 | 28.02960 | Yes | MH458447 | *Acacia mucronata (99%)* | *Acacia mucronata (99%)* | *Acacia mucronata (99%)* | Yes | MH488080 | *Acacia longifolia (99%)* | *Acacia longifolia (99%)* | *Acacia restiacea (98%)* | *Acacia* indet.  (does not support field identification) |
| *A. floribunda* | Heidelberg, Gauteng | -26.50572 | 28.35383 | Yes | MH458448 | 3*Acacia mucronata subsp. mucronata (99%)* | *Acacia mucronata (99%)* | *Acacia mucronata (99%)* | Yes | MH488081 | *Acacia phlebophylla*  (99%) | *Acacia longifolia (98%)* | *Acacia longifolia (98%)* | *Acacia* indet.  (does not support field identification) |
| *A. implexa* | Grahamstown Botanical Garden | -33.3189 | 26.5218 | Yes | MH014106 | *Acacia implexa (99%)* | *Acacia implexa (99%)* | *Acacia melanoxylon (99%)* | Yes | MH014128 | *Acacia maidenii (99%)* | 4*Acacia umbraculiformis (99%)* | 2*Acacia stereophylla var. stereophylla (99%)* | *A. cf. implexa* |
| *A. pendula* | Grootfontein, Middelburg | -31.47125 | 25.02811 | Yes | MH488100 | *Acacia mucronata (99%)* | *Acacia mucronata subsp. mucronata (99%)* | *Acacia mucronata (99%)* | Yes | na | na | na | na | *Acacia* indet. (however too little certainty to say it does not support field identification) |
| *A. provincialis* | Tokai | -34.05960 | 18.41495 | No | MH014101 | *Acacia retinodes (99%)* | *Acacia saligna (99%)* | *Acacia retinodes (99%)* | No | MH014123 | *Acacia beckleri (99%)* | *Acacia hakeoides (99%)* | *Acacia dealbata (98%)* | *Acacia* indet. (With no DNA sequence from a voucher specimen, cannot confirm identity) |
| *A. provincialis* | Tokai | -34.05960 | 18.41495 | No | MH014108 | *Acacia retinodes (99%)* | *Acacia saligna (99%)* | *Acacia retinodes (99%)* | No | MH014130 | *Acacia dealbata (99%)* | *Acacia mearnsii (99%)* | *Acacia dealbata (99%)* | *Acacia* indet. (With no DNA sequence from a voucher specimen, cannot confirm identity) |
| *A. salicina* | Johannesburg Botanical Garden | -26.161 | 27.997 | Yes | MH014113 | *Acacia salicina (99%)* | *Acacia bivenosa (99%)* | *Acacia tysonii (98%)* | Yes | MH014135 | *Acacia xanthina (99%)* | *Acacia rostellifera (99%)* | *Acacia ashbyae (99%)* | *A. cf. salicina* |
| *A. ulicifolia* | Tokai | -34.05960 | 18.41496 | No | MH458445 | *Acacia aculeatissima (98%)* | *Acacia carnosula (93%)* | *Acacia longispinea (94%)* | No | MH488076 | *Acacia longispinea (98%)* | *Acacia longispinea (98%)* | *Acacia erinacea (97%)* | *Acacia* indet. (With no DNA sequence from a voucher specimen, cannot confirm identity) |
| *A. ulicifolia* | Tokai | -34.05960 | 18.41496 | No | MH488101 | *Acacia aculeatissima (98%)* | *Acacia longispinea (93%)* | *Acacia carnosula (93%)* | No | MH488077 | *Acacia longispinea (97%)* | *Acacia longispinea (97%)* | *Acacia obtecta (97%)* | *Acacia* indet. (With no DNA sequence from a voucher specimen, cannot confirm identity) |
| *A. viscidula* | Newlands Forest | -33.97553 | 18.44403 | Yes | MH014107 | *Acacia venulosa (99%)* | *Acacia aspera (98%)* | *Acacia elongata (98%)* | Yes | MH014129 | *Acacia viscidula (100%)* | *Acacia cognata (94%)* | *Acacia baeuerlenii (94%)* | *A. viscidula* |
| *A. viscidula* | Newlands Forest | -33.97543 | 18.44388 | Yes | MH014110 | *Acacia venulosa (99%)* | *Acacia aspera (98%)* | *Acacia elongata (98%)* | Yes | MH014132 | *Acacia viscidula (100%)* | *Acacia flexifolia (94%)* | *Acacia cognata (94%)* | *A. viscidula* |
| Unknown *Acacia* species | Heidelberg, Guateng | -26.50572 | 28.35383 | NA | MH014112 | *Acacia koa* (*99%*) | *Acacia koa* (99%) | *Acacia koa* (99%) | NA (but not for *A. koa*) | MH014134 | *Acacia confusa (99%)* | *Acacia melanoxylon (99%)* | *Acacia melanoxylon (99%)* | *A. cf. koa* (ETS can discriminate between the two taxa (Le Roux et al. 2014), and psbA-trnH is not available for *A. koa* on Genbank.) |
| Unknown *Acacia* species | Johannesburg Botanical Gardens | -26.16186 | 27.99824 | NA | MH014111 | *Acacia hakeoides (99%)* | *Acacia hakeoides (99%)* | *Acacia hakeoides (99%)* | NA | MH014133 | *Acacia hakeoides (99%)* | *Acacia hakeoides (99%)* | *Acacia beckleri (99%)* | *A. cf. hakeoides* |

The following footnotes refer to the status according to [www.theplantlist.org](http://www.theplantlist.org) as at 20 March 2018

1Synonym of *Acacia microbotrya*

2Synonym of *Acacia stereophylla*

3Synonym of *Acacia mucronata*

4Unresolved name

Table b)

| **Herbarium record** | **Taxon** | **Lat** | **Long** | **ETS Genbank accession number from this study** | **Genbank ETS hit 1** | **Genbank ETS hit 2** | **Genbank ETS hit 3** | **psbA-trnH Genbank accession number from this study** | **Genbank psbA-trnH hit 1** | **Genbank psbA-trnH hit 2** | **Genbank psbA-trnH hit 3** | **Proposed identity** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NBG1478283-0 | 1 | -33.5136 | 18.6333 | MH014114 | *Acacia ramulosa (100%)* | ***Acacia brachystachya (100%)*** | ***Acacia tumida (98%)*** | MH014136 | 1*Acacia ramulosa var. ramulosa (100%)* | *Acacia sibina (98%)* | *2Acacia diallaga (98%)* | *A. ramulosa* |
| NBG1478284-0 | 2 | -33.5135 | 18.63347 | MH458449 | ***Acacia plectocarpa (98%)*** | *Acacia curranii (96%)* | *Acacia delibrata (96%)* | na | na | na | na | *Acacia* indet. |
| NBG1478285-0 | 3 | -33.5135 | 18.63347 | MH458450 | *Acacia stipuligera (97%)* | *Acacia torulosa (96%)* | *Acacia proiantha (97%)* | MH488082 | 3*Acacia yorkrakinensis subsp. acrita (99%)* | *Acacia ampliata (99%)* | *Acacia resinimarginea (99%)* | *Acacia* indet. |
| NBG1478286-0 | 4 | -33.5134 | 18.63348 | MH014115 | ***Acacia neriifolia (100%)*** | *Acacia cupularis (99%)* | *Acacia pustula (99%)* | MH014137 | ***Acacia neriifolia (99%)*** | *Acacia dealbata (99%)* | *Acacia mearnsii (99%)* | *A. neriifolia* |
| NBG1478287-0 | 4 | -33.5132 | 18.6339 | MH014116 | ***Acacia neriifolia (100%)*** | *Acacia falciformis (99%)* | *Acacia cupularis (99%)* | MH014138 | ***Acacia neriifolia (99%)*** | *Acacia dealbata (99%)* | *Acacia mearnsii (99%)* | *A. neriifolia* |
| NBG1478288-0 | 4 | -33.5123 | 18.63455 | MH014119 | ***Acacia neriifolia (99%)*** | *Acacia falciformis (99%)* | *Acacia cupularis (99%)* | MH014141 | ***Acacia neriifolia (99%)*** | *Acacia pustula (100%)* | *Acacia dealbata (99%)* | *A. cf. neriifolia* |
| NBG1478289-0 | 5 | -33.5134 | 18.63353 | MH458451 | ***Acacia salicina (99%)*** | ***Acacia bivenosa (99%)*** | *Acacia tysonii (98%)* | na | na | na | na | *Acacia* indet. |
| NBG1478290-0 | 6? | -33.5135 | 18.63358 | MH458452 | ***Acacia aneura (99%)*** | *Acacia hemiteles (99%)* | *Acacia ayersiana (98%)* | MH488083 | *Acacia resinosa (99%)* | *Acacia resinosa (100%)* | *Acacia coolgardiensis (99%)* | *Acacia* indet. |
| NBG1478291-0 | 6? | -33.5136 | 18.63351 | MH458453 | *Acacia hemiteles (99%)* | ***Acacia aneura (99%)*** | *Acacia paraneura (99%)* | MH488084 | *Acacia resinosa (98%)* | *Acacia resinosa (98%)* | *Acacia effusifolia (98%)* | *Acacia* indet. |
| NBG1478292-0 | 6? | -33.5129 | 18.6339 | MH458456 | ***Acacia aneura (99%)*** | *Acacia ayersiana (99%)* | *Acacia hemiteles (99%)* | MH488088 | *Acacia coolgardiensis (99%)* | *Acacia abbreviata (99%)* | 2*Acacia diallaga (98%)* | *Acacia* indet. |
| NBG1478294-0 | 7 | -33.5135 | 18.63367 | MH458454 | ***Acacia bivenosa (99%)*** | *Acacia cupularis (99%)* | *Acacia tysonii (99%)* | MH488085 | ***4Acacia sclerosperma subsp. sclerosperma (100%)*** | ***4Acacia sclerosperma subsp. sclerosperma (99%)*** | ***Acacia ligulata (99%)*** | *Acacia* indet. |
| NBG1478295-0 | 7 | -33.5128 | 18.6339 | MH458459 | ***Acacia bivenosa (99%)*** | *Acacia cupularis (99%)* | *Acacia tysonii (99%)* | MH488091 | ***Acacia sclerosperma subsp. sclerosperma (100%)*** | *Acacia xanthina (99%)* | *Acacia rostellifera (99%)* | *Acacia* indet. |
| not submitted | 7 | -33.5123 | 18.63439 | MH458465 | ***Acacia bivenosa (99%)*** | *Acacia tysonii (99%)* | *Acacia rostellifera (99%)* | MH488096 | **4*Acacia sclerosperma subsp. sclerosperma (99%)*** | **4*Acacia sclerosperma subsp. sclerosperma (99%)*** | *Acacia xanthina (99%)* | *Acacia* indet. |
| not submitted | 7 | -33.5133 | 18.634 | MH458461 | *Acacia tysonii (98%)* | *Acacia cupularis (98%)* | ***Acacia bivenosa (98%)*** | na | na | na | na | *Acacia* indet. |
| NBG1478277-0 | 8 | -33.5135 | 18.63368 | na | na | na | na | MH488086 | *Acacia resinosa (100%)* | *Acacia coolgardiensis (100%)* | *Acacia crassicarpa (100%)* | *Acacia* indet. |
| NBG1478293-0 | 9 | -33.5129 | 18.6339 | MH458455 | *Acacia tysonii (98%)* | *Acacia cupularis (98%)* | ***Acacia bivenosa (98%)*** | MH488087 | 5*Acacia stereophylla var. stereophylla (98%)* | *Acacia dorothea (98%)* | *Acacia jennerae (96%)* | *Acacia* indet. |
| NBG1478299-0 | 10 | -33.5128 | 18.6339 | MH458457 | *Acacia elongata (97%)* | *Acacia baeuerlenii (96%)* | *Acacia aspera (97%)* | MH488089 | 6*Acacia inceana subsp. conformis (99%)* | 6*Acacia inceana subsp. conformis (97%)* | *Acacia cyclops (100%)* | *Acacia* indet. |
| NBG1478300-0 | 10 | -33.5134 | 18.63404 | MH458462 | *Acacia elongata (97%)* | *Acacia baeuerlenii (96%)* | *Acacia aspera (96%)* | MH488093 | 6*Acacia inceana subsp. conformis (99%)* | 6*Acacia inceana subsp. conformis (99%)* | *Acacia sibina (98%)* | *Acacia* indet. |
| NBG1478302-0 | 11 | -33.5128 | 18.63395 | MH458458 | *7Acacia sericophylla (99%)* | ***Acacia coriacea (99%)*** | *Acacia hamersleyensis (98%)* | MH488090 | *Acacia lasiocalyx (100%)* | 5*Acacia stereophylla var. stereophylla (100%)* | *Acacia lasiocalyx (100%)* | *Acacia* indet. |
| not submitted | 12 | -33.5133 | 18.634 | MH458460 | *Acacia confluens (99%)* | *Acacia tenuinervis (97%)* | *Acacia striatifolia (97%)* | MH488092 | *Acacia yorkrakinensis subsp. acrita (99%)* | *Acacia yorkrakinensis subsp. acrita (96%)* | *Acacia resinimarginea (96%)* | *Acacia* indet. |
| NBG1478306-0 | 13 | -33.5134 | 18.63409 | MH458463 | ***Acacia acuminata (100%)*** | ***Acacia acuminata (100%)*** | ***Acacia acuminata (100%)*** | MH488094 | ***Acacia acuminata (99%)*** | 5*Acacia stereophylla var. stereophylla (99%)* | 8*Acacia burkittii (99%)* | *A. acuminata* |
| NBG1478303-0 | 14 | -33.5134 | 18.63407 | MH488104 | *Acacia drepanophylla (99%)* | *Acacia denticulosa (97%)* | *Acacia sessilispica (97%)* | MH488095 | 5*Acacia stereophylla var. stereophylla (98%)* | 9*Pithecellobium clypearia (98%)* | ***Acacia acuminata (98%)*** | *Acacia* indet. |
| NBG1478304-0 | 14 | -33.5123 | 18.63437 | MH458466 | *Acacia drepanophylla (99%)* | *Acacia denticulosa (96%)* | *Acacia neurophylla (96%)* | MH488097 | 4*Acacia stereophylla var. stereophylla (98%)* | *Acacia dorothea (98%)* | *Acacia jennerae (96%)* | *Acacia* indet. |
| NBG1478301-0 | 15 | -33.5134 | 18.63404 | MH014117 | ***Acacia murrayana (100%)*** | ***Acacia murrayana (100%)*** | ***Acacia murrayana (99%)*** | MH014139 | ***Acacia murrayana (99%)*** | ***Acacia murrayana (99%)*** | 10*Acacia umbraculiformis (97%)* | *A. murrayana* |
| not submitted | 16 | 18.63466 | 18.63466 | MH014118 | *Acacia hakeoides (99%)* | *Acacia hakeoides (99%)* | *Acacia hakeoides (99%)* | MH014140 | *Acacia hakeoides (100%)* | *Acacia hakeoides (99%)* | *Acacia beckleri (99%)* | *A. hakeoides* |
| NBG1478305-0 | 16 | -33.5123 | 18.63474 | MH014120 | *Acacia hakeoides (100%)* | *Acacia hakeoides (100%)* | *Acacia hakeoides (100%)* | MH014142 | *Acacia hakeoides (99%)* | *Acacia hakeoides (99%)* | *Acacia beckleri (99%)* | *A. hakeoides* |
| not submitted | 17 | 18.63511 | 18.63511 | MH458464 | *Acacia concurrens (99%)* | *Acacia pellita (99%)* | *Acacia concurrens (99%)* | na | na | na | na | *Acacia* indet. |
| not submitted | 18 | -33.5149 | 18.63798 | MH458467 | ***Acacia calcicola (100%)*** | ***Acacia calcicola (99%)*** | ***Acacia calcicola (99%)*** | MH488098 | 3*Acacia yorkrakinensis subsp. Acrita (94%)* | 6*Acacia inceana subsp.conformis (99 & 98%)* | 9*Acacia umbraculiformis (99 & 98%)* | *A. cf. calcicola* |

The following footnotes refer to the status according to [www.theplantlist.org](http://www.theplantlist.org) as at 20 March 2018

1Synonym of *Acacia ramulosa*

2Unresolved name

3Synonym of *Acacia yorkrakinensis*

4Synonym of *Acacia sclerosperma*

5Synonym of *Acacia stereophylla*

6Not present, but *Acacia inceana* is.

7Synonym of *Acacia coriacea* subsp. *sericophylla*

8Synonym of *Acacia acuminata* subsp. *burkittii*

9Synonym of *Archidendron clypearia*

10Unresolved name