



Kuzuko Lodge Private Game Reserve Thicket Restoration Project

IsiShwankathelo seProjekthi

SPEKBOOM TRADING (PTY) LTD.

Uxwebhu Lulungiswe Ngu: C4 EcoSolutions



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Isiqulatho

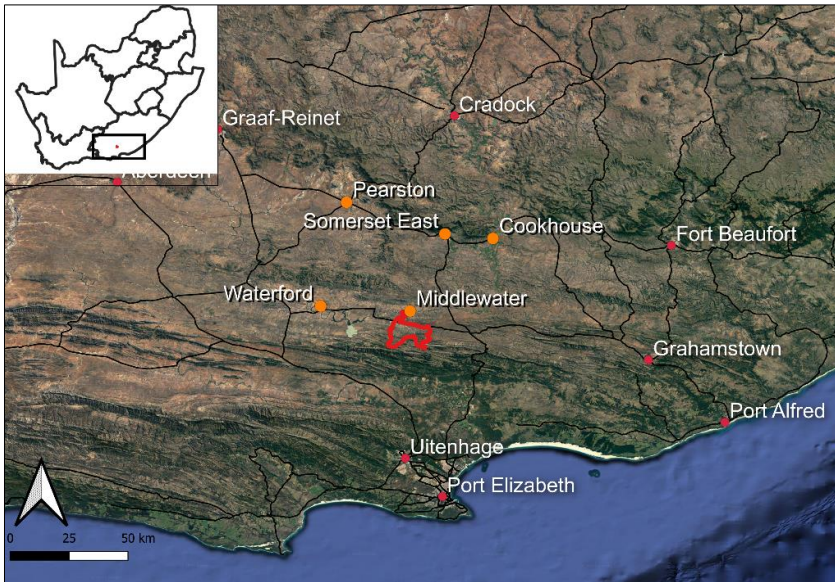
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1. Imvelaphi efanelekileyo yeThicket kunye ne *Portulacaria afra*

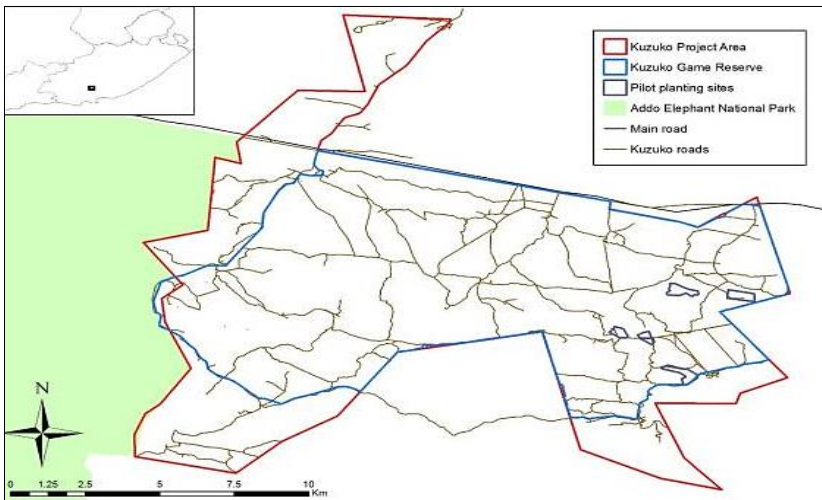
Imbali yokhukiliseko lwetyholo i-Albany Subtropical Thicket, ubukhulu becala ikukutyisa kwemfuyo ngokugqithisileyo, kukhokelele kwilahleko enkulu yezityalo zendalo. Oku ke, kukhokelele kukhukiliseko lomhlaba, ukuncipha kokufumaneka kwamanzi, kwaye kunciphise iindlela zokuziphilisa. Nangona amatyholo aye aqhela ukutyiwa, ezi zityalo azikwazi ukumelana nemfuyo, ngakumbi kwi-*Portulacaria afra* Jacq. (*P. afra*). Ukubuyiswa kwetyholo elikhukilisekileyo ngendalo kulinganiselwe ngenxa yeemeko zangoku zokusingqongileyo. I-*P. afra*, isityalo esikhulu sezityalo ezinencindi yosapho lwe-Didieraceae, isebenza njengovulindlela kunye nomqhubi wenkqubo yendalo kwiindawo ezinamatyholo ezityalo ezinencindi kwaye ichazwa njengeyona nto iphambili ekubuyiseleni amatyholo. Kwityholo, i-*P. afra* isebenza njengomququzeleli wenkqubo yendalo ngokuvelisa izixa ezikhulu zamagqabi, ukuvalela amanzi, kunye nokunciphisa ukhukiliseko lomhlaba, nje ngoko kuphuculwe ukuntshula kunye nokusekwa kweminye imithi yamatyholo, kunye nezityalo ezinencindi. Ukongeza, i-*P. afra* ihlutha izixa ezikhulu zekhabhoni, kwaye ukubuyiselwa kwamatyholo akhukilisekileyo kusetyenziswa izityalo zazo ezisikiweyo kubonakalise ukwandisa kakhulu ikhabhoni engaphezulu nangaphantsi komhlaba.

2. Inkcazo yeProjekthi

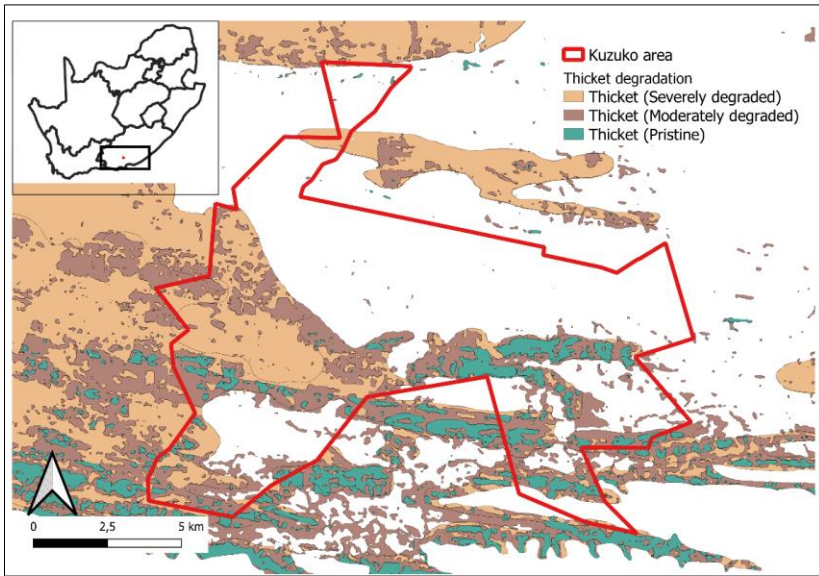
Iprojekthi ecetywayo ye-VCS phantsi kwecandelo Lezolimo, Amahlathi kunye Nolunye Usetyenziso Lomhlaba (AFOLU) ngaphantsi kodidi Lokukutyalwa kwamahlathi, Ukutyalwa kwakhona kwamahlathi kunye Nokutyalwa kwezityalo (ARR) ijolise ekuphuculeni Imozulu, Uluntu kunye Nezityalo zahlukeneyo zendalo (CCB) ngokubuyisela amatyholo akhukilisekileyo eMpuma Koloni yoMzantsi Afrika ngokutyala i-*P. afra* cuttings kwiindawo ezikhukiliseke kancinci nakakhulu (Umfanekiso 1). Indawo yeprojekthi, iKuzuko Lodge Private Game Reserve (KLPGR), ibandakanya malunga ne-12,000 lehektare zommandla lwezilwanyane zasendle obiyelweyo (okubizwa ngokuba yi-"reserve") kunye nomhlaba owongezelelweyo obiyelwe ngokuphantsi oziihektare eziyi-4,000 ngaphandle kwe-reserve (Umfanekiso 2). Ummandla weprojekthi uhambelana nomda weAddo Elephant National Park, enye yeepaki ezinkulu zelizwe eMzantsi Afrika. Idibanisa izityalo ezizizo phakathi kwemida yomhlaba okhukilisekileyo owawusetyenziswa ukutyisa imfuyo. NgokweNkqubo ye-Subtropical Thicket Ecosystem Programme (STEP) kunye nolunye uvavanyo lokhukiliseko lwezityalo, kukho malunga nehektare eziyi-6,800 zamatyholo, kuyo i-5,185 yeehektare ilungele ukutyalwa (Umfanekiso 3). Le projekthi, ixhaswa ngemali yi-Reforest'Action kwaye ixhaswa yi-C4EcoSolutions kunye nolawulo lwe-KLPGR, iya kuqhuba iminyaka eyi-50 ukusuka ku-2014 ukuya ku-2064, i-AfriCarbon ejongene nokuphuyezwa kunye nokubeka iliso. Le projekthi ijolise ukutyala malunga nehektare eziyi-5,185 zamatyholo anezityalo ezisikwe ze-*P. afra*, ukususa i-2.4 yezigidi zeetoni ze- CO₂e emoyeni, ukudala imisebenzi eyi-350 kwiphondo elinesantya sokungaphangeli esiyi-42.8%, ukwandisa iintlobo ngeentlobo zezinto eziphilayo kunye nokuphucula iinkonzo zenkqubo zendalo ukutsalwa kwekhabhoni, umgangatho womhlaba, ukugqunywa komhlaba zizityalo, ukugcinwa kwamanzi kunye nokwanda kwezityalo nezilwanyana kwindawo.



Umfanekiso 1. Indawo yeprojekthi ye-ARR ecetywayo eMpuma Koloni, eMzantsi Afrika.



Umfanekiso 2. Indawo yeprojekthi yaseKuzuko eMpuma Koloni, eMzantsi Afrika - indawo yeprojekthi (ebomvu), umda wolondolozo lwezilwanyana (oblowu), iindawo ezilingwayo zokutyala (mfusa).



Umfanekiso 3. Ukhukhuliseko lwamathiyolo kwindawo yeprojekthi.

3. Umphumezi weprojekthi

I-Spekboom Trading (Pty) Ltd. yindibaniselwano phakathi kwe-AfriCarbon (Pty) Ltd. kunye ne-Inqo Investments (Pty) Ltd. Le nkampani iya kulawula iprojekthi yokubuyisela, incediswa ngabaphathi be-Kuzuko Lodge. Iza kukhupha iikhontrakthi zokutyala kunye nokuvala indawo yokubuyisela ngaphakathi kwe-KLPGR, kwaye iya kuqinisekisa umgangatho wokutyala, kwaye iya kuthengisa iikhredithi zekhabhoni eziqinisekisiweyo ezibhaliswe kwimarike evunyiweyo yeVCS.

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4. Iinzuzo zeProjekthi

IiNzuzo zeProjekthi eziZodwa	Umba
Ukunciphisa ukukhukuliseka komhlaba kunye nokuzinzisa amathambeka ngokutyala i- <i>P. afra</i> .	Imozulu
Ukuphucula ukusebenza kwendawo yeprojekthi njengendawo yokucina amanzi ukubonelela ngamanzi akumgangatho ophezulu kumadama asezantsi.	Imozulu
Ukuba negalelo kuphuhliso lwezakhono zabahlali, imfundo nokwazisa ngendalo esingqongileyo, kunye nokudluliselwa kolwazi.	Uluntu
Ukudala amathuba engqesho kubantu abanezakhono nabangenabuchule ukuze batyale i- <i>P. afra</i> .	Uluntu
Ukwandiswa kweentlobo ngeentlobo zezinto eziphilayo — ngakumbi kwizihlahlana kunye nemithi eyahlukeneyo kunye nezilwanyana zasendle ngokunyusa idlelo lokutyisela kwindawo yeprojekthi.	Iintlobo-ntlobo zezinto eziphilayo

5. IiNjongo zeProjekthi kunye neMisebenzi

Iinjongo zeProjekthi ngokunxumelene nemozulu:

1. Ukuba negalelo ekususeni/ekuncitshisweni kwekhaboni emoyeni.
2. Ukuphucula iimpawu ezibonakalayo zomhlaba
3. Ukuphucula iimpawu zenkqubo yamanzi emhlabeni kunye nokunciphisa ukhukuliseko
4. Ukuhlalwa kwendawo yeprojekthi

Imisebenzi yemozulu

- *Ukujongwa kwesitokhwe sekhabhoni*

Ulingo lokubuyiselwa kunye nohlalutyo lweendawo ezibuyiselwe ngokwembali zibonise imbuyekezo ye-avareji ye-10.33 t CO₂e ha-1 yr-1 kwityholo elithotyweyo elihambelana nezinga lokuqokelelwa kwe-2.8 t C yr-1. Ukubuyisela ihlathi ngokutyala isityalo esisikiweyo se-*P. afra* kubangela ukuba kususwe ikhaboni diokside emoyeni kunye nokubuyisela ikhaboni (kwizityalo ngaphezulu komhlaba, izityalo ngaphantsi komhlaba, kwizityalo ezifileyo, umgquba wamagqabi kunye nekhaboni emhlabeni), ngaloo ndlela kubonelele izixhasi zokususa. Indlela yokusebenza yeCDM ekhethiweyo (AR-ACM0003 v1.0.0) icacisa ukuba akukho kubekwa esweni kwesiseko esifunekayo. Ukongeza, kumlinganiselo weeprojekthi ezinjalo, izinto ezikhutshwayo ezivela kwimisebenzi yeprojekthi azinamsebenzi, kwaye indlela yokusebenza ichaza ukuba inokuthotywa. Uhlolo lwesitokhwe sekhabhoni lubandakanya uvavanyo lobunzima obungaphezulu nangaphantsi komhlaba, ukujonga umlilo wamadlelo, kunye neempawu zomhlaba.

Ubunzima besityalo ngaphezulu komhlaba kubhekisa kwimilinganiselo wesiqu sesityalo edityanisiweyo, umgquba wamagqabi, kunye nezityalo ezifileyo ze-*P. afra*. Ubunzima besityalo ngaphantsi komhlaba imelwe njengexalenye yobunzima besityalo ngentla komhlaba, kwaye u-t ubalwa kusetyenziswa umlinganiselo weengcambu zokudubula othathwe kuncwadi. Njengexalenye yovavanyo oluqhubekayo lwesitokhwe sekhabhoni, ukubekwa esweni kobunzima besityalo ngaphezulu komhlaba nangaphantsi komhlaba kuya kuqhutywa

ngamaxesha athile, kunye nomlinganiselo wokuqala oza kuthatyathwa kwaye imilinganiselo elandelayo iya kwenzeka rhoqo emva kweminyaka emihlanu emva koko.

Ukubeka iliso kwimililo yamadlelo kuya kuvavanywa ukufumanisa ilahleko lobunzima besityalo, ilahleko yekhabhoni iyonke yokukhutshwa kweGHG ekhutshwayo. Ukubekwa esweni kuya kwenziwa emva kwesiganeko ngasinye somlilo wedlelo kwaye kuya kwenza imephu yendawo etshileyo kunye nobunzima besityalo yemithi elahlekileyo.

- *Ukuphucula iimpawu zomhlaba*

Imbalela, izikhukula (ukubaleka kwamanzi) kunye nokhukuliseko lomhlaba (ukhukuliseko lomoya, amaqondo aphezulu obushushu bomhlaba) zezona ngozi ziphambili zokusingqongileyo ezijongene nommandla weprojekthi kunye nemimandla eyingqongileyo. Ukubuyiselwa kwemihlaba ethotyweyo kusetyenziswa i-P. *afra* kwandisa umthamo wezinto eziphilayo zomhlaba, ngaloo ndlela kuphuculwe ukungena kwamanzi emhlabeni kunye nokunciphisa ukuxinana komhlaba. Ukuhlolwa kweempawu zomhlaba kuya kubandakanya umthamo womhlaba, ubunzima, utshintsho kumthamo womhlaba kunye nomthamo wokubamba amanzi.

- *Imephu yokhuselo lomhlaba*

Ukwenziwa kwemephu yendawo yeprojekthi kuya kwenziwa ekuqaleni kusetyenziswa imifanekiso yangoku yedrone kwaye kuthelekiswe nemifanekiso yembali edityaniswe neemephu zamaty eendawo. Oku - kunye novavanyo kwezi ndawo kunye novavanyo lwezityalo - kuya kunceda ekukhetheni indawo yokubuyisela amatyholo. Ezi mephu ziya kuhlaziywa ukuhlola iimpembelelo zemisebenzi yokubuyisela.

linjongo zoluntu:

- Uthethathethwano nophuhliso loluntu.
- Ukuphucula iindlela zokuphila zoluntu.
- Ukuphucula ukhenketho lwendalo lwe-KLPGR kunye neefama/iiloji ezingqongileyo
- Ukwenza igalelo kuphuhliso lwezakhono zasekhaya, imfundo ngokusingqongileyo, ukwazisa, ukutshintshiselana ngolwazi, kunye nophuhliso lolutsha lwasekuhlaleni.

Imisebenzi yoluntu:

- Ukubonisana nabachaphazelekayo kwimisebenzi yeprojekthi, ukulungiswa kweprojekthi kunye nokwamkelwa kweprojekthi.

Uthethwano nabachaphazelekayo lubalulekile kwimpumelelo yeprojekthi, ukuquka imisebenzi yeprojekthi, ukuziqhelanisa nokwamkelwa. Abachaphazelekayo baquka abasebenzi beloji, abanini-mhlaba abangabamelwane, abasebenzi bezityalo, kunye nabasebenzi baseAfriCarbon. Iintlanganiselo zikawonke-wonke ezibanjwa kabini ngonyaka zibonelela ngohlaziyo ngenkqubela yeprojekthi kwaye zikhuthaza unxibelelwano oluvulelekileyo, ngelixa abasebenzi nabasebenzi benokuxoxa ngeembono zabo nabaphathi okanye abasebenzi beprojekthi. Impembelelo yemisebenzi yeprojekthi kokusingqongileyo ibekwe esweni ngohlolo lwarhoqo lwabachaphazelekayo, ukulandelela utshintsho kwizinto eziphilayo ezahlukeneyo, amanzi, umhlaba, ulondolozo/ukubuyisela ulwazi, kunye nokhenketho lwendalo.

- *Ukuqeshwa kwekontraka zasekhaya ukuze kuphunyezwe iprojekthi.*

Ukuvuna kunye nokutyala i-P. *afra* ngumsebenzi onzima. I-Spekboom Trading iza kuqesha abasebenzi abamalunga ayi-350 ukuba baqhube umsebenzi wokuvuna, ukutyala, kunye

nokusekwa kwezityalo ze-nursery. Ukuvuna, amaqela angamadoda nabasetyhini aya kubandakanya ~ 30 abantu lilinye, kubandakanywa abaphathi, izixhobo zokubala, iimbaleki kunye nabathuthi. I-nursery iya kuqesha malunga ne-100 yabantu abangamadoda nabasetyhini, kubandakanya imisebenzi efana nokuseta iitreyi ezinomhlaba, ukunkcenkceshela, ukutyala, kunye nokujonga umgangatho womphathi. Ukulima, aba basebenzi baya kwahlulwa babe ngamaqela ali-11 kwalishumi, ngalinye libe nenkokeli yeqela elongezelelweyo. Abasebenzi baya kufunwa ikakhulu kwiidolophu ezingqonge indawo yeprojekthi, oko kukuthi, iJansenville, iKirkwood, iKlipplaat, iSomerset East, iPearston, iAddo nePaterson. Izinga eliphezulu lentswelanguqesho eMpuma Koloni, ingakumbi phakathi kolutsha, ligxininisa ukubaluleka kwamathuba engqesho abonelelwa yile projekthi ye-ARR.

- *Ukuqeqesha iikontraka nokwabelana ngolwazi kwimiba yendalo esingqongileyo, ukubuyiselwa kunye nolondolozo.*

Le projekthi ijolise ekwakhiweni kwezakhono zasekuhlaleni ngoqeqesho lwabasebenzi kunye nemfundo yendalo esingqongileyo nangokusebenzisa iKuzuko Foundation Trust (KFT). Abasebenzi abaqeshiweyo baqeqeshwa kwiinkalo zobugcisa zehlathi ezifana nokukhethwa kokugawula, ukulungisa umhlaba, ukulawula indawo yokukhulisa izityalo, ukutyala, impilo nokhuseleko njl. Ngokuqesha abasetyhini, iprojekthi ijolise ekudaleni ukulingana ngokwesini nokuphucula umgangatho wokuphila kuluntu olungqongileyo.

- *Utyalo-mali kwiKuzuko Foundation Trust.*

I-KFT yasekwa ukudala amathuba engqesho, ukufikelela kwiinkonzo zempilo kunye nemfundo kuluntu lwasekuhlaleni. Le projekthi iza kufundisa uluntu lwasekuhlaleni kunye nolutsha ngemiba yokusingqongileyo kunye nolondolozo ngokusebenzisa i-KFT.

linjongo ngokunxulumene neentlobo-ntlobo zezinto eziphilayo:

- Ukubuyisela intshinyela ephakathi kunye neyonakele kakhulu ngokusikwa kwe-spekboom
- Ukuphucula izinto eziphilayo ezahlukeneyo
- Ukunyuswa kweXabiso eliPhezulu loLondolozo (HCV) indawo/iyantlukwan
- Ukwanda kobukho beentlobo zepollinator.

Imisebenzi enxulumene neentlobo-ntlobo zezinto eziphilayo:

- *Ukutyalwa kweP. afra kwindawo yeprojekthi, nolawulo lwamahlathi*

Le projekthi ijolise ekutyaleni i-P. afra ukubuyisela kumatyholo akhukhulisekileyo. linkcazo zamazwe akhukhulisekileyo amiselwe kwizifundo zangaphambili kunye nophando lwasendle. Amatyholo akhukhulisekileyo acuthe ubunzima besityalo, ubukho bezityalo ezingaqhelekanga, kunye notshintsho kwisakhiwo, kodwa lusasebenza. Amatyholo onakaliswe kakhulu aphulukene nokusebenza, anciphisa kakhulu ubunzima besityalo, kwaye inxulunyaniswa namanqanaba aphezulu okungasetyenziswa ngendlela ngabantu kunye nokuthotywa okubonakalayo.

- *Ukukhethwa kweendawo zokutyala*

Iindawo zokutyala i-P. afra ziya kukhethwa ngokusekwe kwimifanekiso yasemoyeni kwaye ingqinwe ngovavanyo lwasemhlabeni ngoochwephesha. Ukulima kuya kwenziwa ngokulandelelana kwaye kuvunywe ngabaphathi be-KLPGR. Ubungakanani beendawo zokutyala abulungiswanga kodwa ngokuqhelekileyo iihektare ezi-5 ngeentsuku ezimbini liqela labantu abayi-10. Iindawo zokutyala ziya kukhethwa kwaye zihlolwe yiSpekboom Trading. Akukho

malungiselelo afunekayo kuhlobo lwendalo lwe *P. afra*, olulungelelaniswe nohlaza lwasekuhlaleni. Kulindeleke ukuphazamiseka okuncinci.

- *Ukuvunwa kweP. afra*

Ukuvunwa kwe-*P. afra* kwenziwa kwityholo elingaguqukanga kungama weekhilomitha eziyi-50 kwindawo nganye yokutyala ukunciphisa umngcipheko wongcoliseko lwemfuza. Izityalo ezisikiweyo ziyi-200-400 mm ubude kwaye zinesiqu esiyi-1-1.5 cm ububanzi besiqu, zikhethelwe umbala wazo oluhlaza. Zipakishwa kwiikreyiti zisiwe kwindawo yokukhulisa izityalo, apho ziye zityalwe kumxube womhlaba oyisanti. Kwiiveki ezine ukuya kwezintandathu emva kokutyala, ukunkcenceshelwa kwezityalo ezisikiweyo kuyaqala, kwaye xa sele zikhulile, izityalo ze-*P. afra* ezineengcambu ziyasuswa kwaye zipakishwe kumakhreyithi ukuze zihanjiswe kwindawo yokutyala intsimi. Ukuvuna kwenziwa ngokuzinzileyo, kwaye akukho ngaphezulu kwe-30% yamasebe asusiweyo kwisityalo esinye somthombo ukunqanda umonakalo we-ecosystem.

- *Ukutyala iP. afra cuttings*

Ukusikwa kwe *P. afra* (200-400mm ubude, 1-1.5cm isiqu) zityalwa kusetyenziswa amaqela abantu abane. Imingxuma igrunjwa (ubunzulu obuphakathi kwe-10-15cm), kwaye iziqwenga zityhalwa ngaphakathi kwaye zinyathelwe ngokuqinileyo. Ukutyala kwenziwa ngokucwangcisiweyo ukuqinisekisa ukuxinana okufanayo kwaye akukho ndawo ziphosakeleyo. Umphathi wenza ulawulo lobulunga ukugcina ubunzulu bezityalo kunye nezithuba. I-*P. afra* ingatyalwa kwizihlahla zoongikazi ukuze ufumane inzuzo eyongezelelweyo. Izityalo ezisikiweyo zikhula zibe yimithi/izihlahla ezinezikhondo ezininzi kwiminyaka eyi-10-15 kwaye ayifuni galelo elongezelelweyo. I-AfriCarbon ihlola iindawo zokutyala ukuqinisekisa ukuba iindlela ezichanekileyo zisetyenziswa kwaye iziphumo ziyanelisa.

- *Utyalo olongezelelweyo lwe P. afra*

Ukutyalwa okongeziweyo (okukwabizwa ngokuba “yi-blanking” okanye “inboeting”) kwenziwa ukuze kufakwe izityalo kwindawo apho kukho ezifileyo. Izinga lokusinda libekwe esweni minyaka le yi-AfriCarbon ukumisela imfuneko yokutyala okongeziweyo. Ukusika kusengozini kakhulu ngexesha lokusekwa (iminyaka eyi-1-2), kodwa kukho amathuba aphantsi okufa xa sele esungulwe. Ukutyala ngokutsha kuphela kolondolozo olufunekayo emva kokutyala kwiprojekthi. Akukho kuthenwa okanye kuhlakula okufunekayo ukuze kuqhubekwe ukukhula okusempilweni kwezityalo ze-*P. afra*.

- *Ulonolozo lwendawo yokuhlala izilwanyane nezityalo, ulawulo, kunye nokubeka iliso kwizinto ezahlukahlukeneyo eziphilayo*

Iprojekthi ye-ARR ijolise ekubuyiseleni amatyholo onakeleyo, ukwandisa iintlobo-ntlobo zezityalo nezilwanyana eziphilayo kwaye kuxhamle uluntu olungqongileyo. Kuya kwenziwa uhlolo lwezityalo nezilwanyana ezohlukeneyo ukulandelela utshintsho emhlabeni, emanzini, kwiintyatyambo kunye neentlobo ngeentlobo zezilwanyana, ii-HCVs, kunye nobukho be-pollinator. Ukusetyenziswa kwendawo ebuyiselweyo akuvumelekanga.

6. Izibonelelo zezizulu, uluntu kunye neZityalo ezahlukeneyo

Imozulu

Ngaphandle kwemisebenzi yeprojekthi, amaqanaba ekhabhoni kulindeleke ukuba ahlale ezinzile kubo bonke ubomi beprojekthi nangona indawo isetyenziselwa ulondolozo. Oku kubangelwe kukungabikho sesakhono sokuzihlaziya kumahlathi akhukhulisekileyo, nkqu nolawulo lokuxinana kwezilwanyana ezitya ingca. Ukongeza, ukuna kweemvula ezingaqhelekanga kunye namaxesha embalela okubangelwa kukutshintsha kwemozulu kuchaphazela kakhulu ukuzinza kokuziphilisa koluntu lwale ngingqi. Ukubuyiswa kwetyholo kunokuzinciphisa ezi ziphumo ngokuzinza imihlaba, ukwandisa ukungena kwamanzi, kunye nokunciphisa ubushushu bomhlaba.

Utshintsho kwizitokhwe zekhabhoni yenye yezinto ezibalulekileyo kwiinzuzo zemozulu zeprojekthi, kwaye oku kuya kubekwa esweni rhoqo kwiminyaka engamashumi amahlanu yobomi beprojekthi. Itheyibhile 1 engezantsi ibonisa ikhabhoni epheleleyo esetyenzisiweyo kwisinki nganye, eqikelelwa ngonyaka ngokwesiseko sonyaka. Amanqanaba ekhabhoni aya kubekwa esweni kubunzima be-*P. afro* engaphezulu komhlaba, imithi efileyo, inkunkuma yamagqabi kunye nomhlaba kwiindawo ezininzi. Iindawo ezisisigxina ziya kusetyenziswa ngexesha lobomi beprojekthi ukulandelela ikhabhoni engaphezulu komhlaba. Ubunzima be-*P. afro* buya kulinganiswa ngemilinganiselo yesiqu sesityalo kwaye idibaniswe neenguqu kwizitokhwe zekhabhoni. Indlela efanayo iya kusetyenziswa ukulinganisa imithi efileyo, kunye nenkunkuma yamagqabi ngaphakathi kwendawo ezisisigxina, inkunkuma yamagqabi ilinganiswa ngobunzima ngokusebenzisa ifreyimu yesikwere engu-1 m kwaye imithi efileyo ilinganiswa ngokusebenzisa i-transect ye-50 m ubude. Ukongeza, ulandelelo lwemililo yamadlelo kuya kuhlolwa ukufumanisa ulahleko lobunzima lwesityalo kunye nekhabhoni epheleleyo ekhutshwayo yeGHG ekhutshiweyo. Ulandelelo luya kwenziwa emva kwesiganeko ngasinye somlilo wedlelo kwaye oku kuyakusetyenziswa ukwenza imephu yendawo etshileyo kunye nobunzima bemithi elahlekileyo.

Ukwenziwa kwemephu yendawo yeprojekthi kuya kwenziwa ekuqaleni kusetyenziswa imifanekiso yangoku yedrone, umfanekiso wembali kunye neemephu zamatyende. Oku - kunye nokuqinisekisa ngokuthe ngqo kunye novavanyo lwezityalo - kuya kunceda ekukhetheni indawo yokutyala. Ezi mephu ziya kuhlaziywa ukuhlola iimpembelelo zemisebenzi yokubuyisela.

Itheyibhile 1. Iitotali zokutsalwa kwekhabhoni kwiqula ngalinye lekhabhoni kwindawo yonke yeprojekthi ngexesha leprojekthi ngonyaka (t CO₂e).

Unyaka	Imithi	Izihlahla	Inkunkuma yamagqabi	Imithi efileyo	Umhlaba	izinto ezikhutshwayo	Ikhoboni etsaliweyo
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	11,7 35.3	0.0	0.0	0.0	32,266.7	0.0	44,002.0
10	38,7 79.8	0.0	0.0	0.0	108,313.3	0.0	147,093.1
15	116, 705. 3	0.0	0.0	0.0	184,360.0	0.2	301,065.1
20	319, 888. 5	0.0	0.0	0.0	260,406.7	0.5	580,294.7
25	741, 925. 0	0.0	0.0	0.0	304,186.7	1.2	1,046,110.4
30	1,31 9,77 9.9	0.0	0.0	0.0	304,186.7	2.7	1,623,963.8

35	1,77 2,51 9.2	0.0	0.0	0.0	304,186.7	4.9	2,076,700.9
40	1,98 4,15 3.2	0.0	0.0	0.0	304,186.7	7.6	2,288,332.3
45	2,05 6,12 7.0	0.0	0.0	0.0	304,186.7	10.4	2,360,303.3
50	2,07 7,53 6.6	0.0	0.0	0.0	304,186.7	13.2	2,381,710.1

Uluntu

Uluntu olungqonge ummandla weprojekthi lubandakanya iidolophu ezincinci ezinengqesho kunye namanqanaba emfundo aphantsi, afana neJansenville, iKirkwood, iKlipplaat, iSomerset East, iPearston, iAddo nePaterson, kunye neefama ezincinci kunye noluntu lweefama. Bonke abantu bathathwa njengabachaphazelekayo ababalulekileyo kwiprojekthi. Ukongeza kwimiba yezentlalo noqoqosho ekhankanywe ngasentla, ukhukhuliseko kule ngingqi kucuthe impumelelo yokulima nokufuya. Le projekthi ijongana ngqo nentswela-ngqesho kwiindawo ezingqongileyo ngokuqesha amalungu oluntu kunye nokwandisa amathuba oshishino kunye neendlela zokuziphilisa. Iinkqubo ezichanekileyo zokulingana kwamathuba kwinkqubo yokuqesha ziya kuphunyezwa kumaqela asemngciphekweni afana nabasetyhini, ulutsha kunye nabakhubazekileyo. Iimpembelelo zemozulu zokubuyiselwa kwamatyholo ziya kuba yingenelo kwabo bachaphazelekayo ngokunciphisa iimpembelelo zembalela ngokuphucula ukungena kwamanzi emhlabeni nokugcinwa kwamanzi kwinkqubo yokusetyenziswa kwamanzi kunye nokuzinzisa imihlaba. Emva koko, iintlobo ngeentlobo zezinto eziphilayo kunye nobunzima bezityalo ziya kwanda, ukwandisa umthamo wokuthwala umhlaba. Oku kuya kunceda ekuphuculeni amathuba okufama phakathi koluntu lwamafama kwaye lubonelele ngenye indlela yokuziphilisa ngorhwebo lwekhabhoni.

Iinzuzo ezithe ngqo zoluntu ziya kubekwa esweni ngokunikezela amaphepha emibuzo acwangcisiweyo ajoliswe kubasebenzi abakhoyo nababesebenza eprojekthini beqeshwe kuluntu lwasekuhlaleni. Kwangaxeshanye, isiseko kunye nokubeka iliso kwiimbono zabanini-mhlaba ebumelwaneni ngeprojekthi iya kulandelelwa ngemibuzo kunye neentlanganiso zasekuhlaleni. Iphepha lemibuzo, ngakumbi ezo ezijoliswe kubasebenzi abaqeshwayo, ziya kufuna ukuseka nokulandelela ulwazi lwabasebenzi ngolondolozo, isimo sentlalo-qoqosho, izakhono, intlalontle, kunye nokwaneliseka komsebenzi. Iinjongo zoluntu zale projekthi zijolise ekuphuculeni uluntu (ulwazi nezakhono), intlalontle (ubudlelwane phakathi koluntu), isimo semali (ingqesho) kunye nesimo sendalo (ubukho bamanzi kunye nokuzinza komhlaba) (Itheyibhile 2).

Itheyibhile 2. Iimpembelelo zoluntu ezilindelekileyo (CM2.1)

Iqela loluntu	Iimpembelelo	Uhlobo Lwenzuzo/Ixabiso/Umngcipheko
Uluntu	Ukuphucula iindlela zokuphila ngokuqesha ngokuthe ngqo	Elungileyo, Eyiyo, Ngqo

	Ukwanda kwenani labantu abanezakhono eziphuculweyo ngenxa yamathuba ahlukeneyo emfundo nengqesho abasuka kuqeqesho	Elungileyo, Eyiyo, Ngqo
	Ukugcinwa kwemozulu	Elungileyo, Okuqikelelweyo, Okungathanga ngqo
	linzuzo zenkqubo yendalo	Elungileyo, Okuqikelelweyo, Okungathanga ngqo
	Ukuphuculwa komgangatho womhlaba	Elungileyo, Okuqikelelweyo, Okungathanga ngqo
	Ubutyebi bamanzi	Elungileyo, Okuqikelelweyo, Okungathanga ngqo
Abasetyhini kunye Nolutsha	Abasetyhini baya kuba namathuba alinganayo okuthatha inxaxheba kwimisebenzi yeprojekthi kuwo onke amanqanaba.	Elungileyo, Eyiyo, Ngqo
	Ukunciphisa kakhulu umyinge wolutsha olungaphangeliyo, olungafundanga, nolungaqeqeshwanga	Elungileyo, Eyiyo, Ngqo
lifama/iindawo zokulala ezikufutshane	linzuzo zendalo	Elungileyo, Okuqikelelweyo, Okungathanga ngqo

Intlobo-ntlobo zezinto eziphilayo

Ummandla weprojekthi uwela phakathi kwamaziko aseMaputaland-Pondoland-Albany entlukwano emele iintlobo ngeentlobo zezityalo nezilwanyana ezikhethekileyo. Izityalo zommandla weprojekthi ubukhulu becala bunamatyholo anencindi, ayi-6,800 yeehektare kwi-16,000 yeehektare zizonke eziboniswe njengehlathi lendalo okanye elikhukhulisekileyo elilawulwa yi-*P. afra*. Ezinye iintlobo zezityalo kulo mmandla ziquka ifynbos kunye nethafa lengca ecaleni komlinganiselo osemantla weentaba zaseZuurberg, iindawo apho i-*P. afra* ingasayi kutyala khona. Njengoko ihlathi elithotyweyo litshintshela kolunye uhlobo oluzinzileyo olubandakanya izinto ezininzi zekarroid, izigqibo ezisekelwe kubungqina zokutyala kufuneka zenziwe ukuphepha ukutyala i-*P. afra* kwiindawo apho ibingayi ukukhula ngokwembali. Isebenza ikakhulu njengendawo yolondolozo kunye nokhenketho lwendalo, i-KLPGR ibamba iindidi ezininzi zezilwanyana ezidweliswe ngokubomvu ezixhomekeke kwiindawo zokuhlala ezinamatyholo, njengeeNdlovu zase-Afrika. Iziseko zokwahluka kwezityalo (umthi/isihlahla nengca/iforb) ziya kulinganiswa kwaye zibekwe iliso kubomi beprojekthi kwaye zinciphiswe ziindlela zabemi bezityalo ezidweliswe ngokubomvu neentlobo zezilwanyana. Iinzuzo ezilindelekileyo zezityalo nezilwanyana ezilindelekileyo kwimisebenzi yeprojekthi zichazwe kwithebyihile engezantsi (Ithebyihile 3).

Itheyibhile 3. Utshintsho olulindelekileyo lweentlobo-ntlobo zezinto eziphilayo

Icandelo lweentlobo-ntlobo zezinto eziphilayo	Utshintsho oluqikelelweyo	Ukuthetheleleka kotshintsho
Umgangatho womhlaba	Ukuphuculwa komgangatho womhlaba	Ukutyalwa kwe- <i>P. afra</i> kuphucula umgangatho womhlaba ngokongezwa kwenkunkuma yamagqabi kwaye okukuphuculwa komgangatho womhlaba kunye nekhaboni emhlabeni kuya kukhokelela kumazinga aphuculweyo okungena kunye nokugcinwa kwamanzi emihlaba.
Ukukhwela inkqubo yokujikeleza kwezondlo	Uphuculo lwenkqubo yokujikeleza yezondlo ngaphakathi kwenkqubo yendalo.	Ukubuyisela ihlathi ngokutyala i- <i>P. afra</i> kubangela ukususwa kwe-khaboni emoyeni kunye nokubuya kwe-khaboni kwinkqubo yendalo (kwizityalo ngaphezulu komhlaba, kwizityalo engaphantsi komhlaba, izityalo ezifileyo, umgquba wamagqabi, kunye nekhaboni emhlabeni), ngaloo ndlela ibonelela ngokuncedisa ukutsala.
Iintyatyambo nezilwanyana zomthonyama	Ukwaziswa kwakhona kwezinye izityalo nezilwanyana zemveli	Ukwahlukana kwezihlahla kunye nemithi kuya kwanda ngenxa yokutyalwa kwe- <i>P. afra</i> , kuba umthunzi yayo inciphisa amaqondo obushushu omhlaba, iphucula umgangatho womhlaba ngokufaka umgquba wamagqabi, inciphisa iziganeko zeqabaka phantsi kwaye kunokwenzeka ukunciphisa ukubaleka kwamanzi emvula.
Umsebenzi womvumvuzelwano	Ukwanda komsebenzi womvumvuzelwano osuka kwiinyosi/izinambuzane	Ukubuyiselwa kwamatyholo akhukhulisekileyo kuya kukhuthaza ukwanda kweenyosi kunye nezinye izilwanyane nezinambuzane ezisasaza iimbewu ngaphakathi nakwindawo ejikeleze iprojekthi. Oku kunokuphucula ukuzala kwezityalo zasendle kummandla weprojekthi ngokunjalo nokuveliswa kwakhona kwezityalo ezilinywa kwiindawo ezingqongileyo, okukhokelela ekuphuculweni kwemveliso yokutya, kwaye kukhokelela ekukhuleni koqoqosho lwamafama kwiindawo ezikufutshane.

7. Umngangatho Wegolide Malunga Neenzunzo Zemozulu kunye Nentlobo Ngeentlobo Zezinto Eziphilayo

Le projekthi ilindele iimpembelelo ezilungileyo ekuthomalaliseni imozulu kunye nezityalo nezilwanyana ezohlukeneyo kummandla weprojekthi. Iinzuzo zeprojekthi malunga nemozulu kunye neentlobo-ntlobo zezinto eziphilayo zifikelela kwinqanaba legolide.

Umngangatho Wegolide Malunga Nemozulu: Impembelelo yeprojekthi ye-ARR ecetywayo kwimozulu ilungile. Ikhlabhoni enokuthinjwa ephelileyo ngeyunithi yommandla womhlaba yi-613.31 t CO₂e ha⁻¹. Ummandla uqikelelwa ukuba ufumana amaqondo obushushu aqhubekayo kunye nokunyuka okunokwenzeka kwe-2.0 ° C ngo-2050 kunye ne-4.2 ° C ngo-2090 ukuba kuqhubeka kukhutshwa ikhaboni eninzi emoyeni. Amaza obushushu kunye namazinga okunyuka komphunga kulindeleke ukuba anyuke, anokuchaphazela uphuhliso loqoqosho lwasekhaya kunye nemveliso yezolimo. Ukubuyiselwa kwetyholo nge-*P. afro* kuya kuhlutha isixa esikhulu sekhabhoni kwaye kuncede ukunciphisa iziphumo zokutshintsha kwemozulu.

Ngokweemodeli ezininzi, imvula eMzantsi Afrika kuqikelelwa ukuba zinciphe ukuba kuqhubeka kukhutshwa ikhaboni eninzi emoyeni. Ummandla weprojekthi, omi kwindawo enemvula encinane engenamilambo mikhulu, ufumana imbalela ngamaxeshathile. Imisebenzi yeprojekthi iza kunceda ukunciphisa ifuthe lembalela ngokwandisa ukufumaneka kwamanzi kwindawo yeprojekthi. Lo ngumba obalulekileyo wokusingqongileyo kunye nentlalontle ngenxa yemozulu yendawo yeprojekthi.

Biodiversity Gold Standard: The project area is located in a biodiversity hotspot. The hotspot contains approximately 8,100 species and has a very high percentage of endemism in the region. Overall, of the 8,100 species, region is thought to contain 83 critically endangered plant species, 128 that are endangered and 323 that are listed as vulnerable. Some of these Red Listed species include the Mountain zebra (*Equus zebra*), African Elephant (*Loxodonta africana*), Karoo cycad (*Encephalartos lehmannii*) and the flightless dung beetle (*Circellium bacchus*). These threatened species will benefit from the increased habitat gained through thicket restoration.

Umngangatho Wegolide Malunga Nentlobo Ngeentlobo Zezinto Eziphilayo: Ummandla weprojekthi ukwindawo enezityalo nezilwanyana ezohlukeneyo. Le ndawo iqulethe malunga neentlobo eziyi-8,100 kwaye inepesenti ephuzulu kakhulu yezityalo kunye nezilwanyane zengingqi. Ngokubanzi, kwiintlobo eziyi-8,100, ummandla kucingelwa ukuba uneentlobo zezityalo eziyi-83 ezisengozini yokuphela, i-128 esengozini kunye ne-323 edweliswe njengezisengozini. Ezinye zezi ntlobo zeRed List ziquka i-Mountain zebra (*Equus zebra*), i-African Elephant (*Loxodonta africana*), i-Karoo cycad (*Encephalartos lehmannii*) kunye ne-flightless dung beetle (*Cirellium bacchus*). Ezi ntlobo zezilwanyana zisesichengeni ziya kuxhamla kulwandiso lwendawo yokuhlala efunyenwe ngokubuyiselwa kwamatyholo.