

Moduli ya 2: Uchaguzi wa aina kwa ajili ya marejesho ya misitu



Welcome to **the second module in our Forest Restoration series:** 'Species selection for forest restoration'. In this module we will explore how to select appropriate species for your restoration site.

Mfumo wa 2: Uchaguzi wa aina kwa ajili ya marejesho ya misitu

Lengo la moduli



Moduli hii inalenga kuhakikisha ufahamu mkubwa wa:

- Thamani ya urejesho wa misitu ya biodiverse ya marejesho ambayo inatia ndani aina mbalimbali za asili
- Rasilimali zilizopo kusaidia mchakato wa uteuzi wa aina
- Jinsi bustani za mimea zinaweza kutoa msaada kwa mradi wako wa kurejesha misitu
- Mbinu tofauti za kurejesha mazingira ambayo inaweza kutumika

The aim of this module is to have a greater understanding of the following

- The value of incorporating a wide mix of native species into your restoration site
- The resources which are available to support the species selection process
- The ways in which botanic gardens can provide assistance to forest restoration
- The different ecological restoration approaches that can be used for your restoration project
- Lengo la moduli hii ni kuwa na ufahamu zaidi wa zifuatazo
- Thamani ya kuingiza mchanganyiko mkubwa wa aina za asili katika tovuti yako ya kurejesha
- Rasilimali zinazopatikana kusaidia mchakato wa uteuzi wa aina
- Njia ambazo bustani za botani zinaweza kutoa msaada kwa marejesho ya misitu
- Mifumo tofauti ya kurejesha mazingira ambayo inaweza kutumika kwa ajili ya mradi wako wa kurejesha

Kurejesha misitu



Kurejesha misitu ni "vitendo vya kuanzisha upya michakato ya kiikolojia, ambayo huharakisha upya wa muundo wa misitu, viwango vya kazi na viumbe hai kwa wale wa kawaida wa misitu ya kilele"

(Elliot et al., 2013)



As discussed in the previous module forest restoration involves actions to re-instate ecological processes, which accelerate recovery of forest structure, ecological functioning and biodiversity levels towards those typical of climax forest. i.e. putting back what was there before. To achieve forest restoration rather than just reforestation a restoration site must be planted with native species.

Kama ilivyojadiliwa katika marejesho ya misitu ya awali misitu inahusisha vitendo vya kuanzisha tena michakato ya kiikolojia, ambayo huharakisha urejesho wa muundo wa misitu, viwango vya mazingira na viumbe hai kwa yale ya kawaida ya misitu ya mapinduzi. yaani, kurejesha kile kilichokuwa hapo awali. Ili kufanikisha marejesho ya msitu badala ya uharibifu wa ardhi, tovuti ya kurejesha lazima ipandwa na aina za asili.

Kwa nini aina za asili?



Kwa kawaida ilichukuliwa



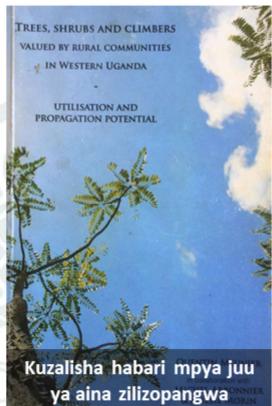
Chini uwezekano wa kuwa vamizi



Uhifadhi wa viumbe hai



Maadili ya dawa na kitamaduni



Kuzalisha habari mpya juu ya aina zilizopangwa

Why use native species?

There are many benefits to planting native species in your restoration site. These include:

- Native species are naturally adapted to local environment conditions of the restoration site and therefore often have better survival rates than exotic species, and require less care to become established (for example through watering)
- Native species are much less likely to become invasive.
- By incorporating threatened or highly utilised native species, biodiverse ecological restoration can contribute to national biodiversity commitments such as the Aichi Biodiversity Targets and the Sustainable Development Goals.
- Planting native species also provides the opportunity to grow plants with local cultural values and traditional medicine sources, which when managed sustainably can help maintain cultural practices, traditional knowledge and generate support for the project from local communities.
- In addition, planting native species that are not currently widely cultivated provides the opportunity to generate new and valuable information on these often understudied species and can also facilitate cross-sector collaborations e.g. with research institutes.
- Kwa nini tutumie aina za asili?

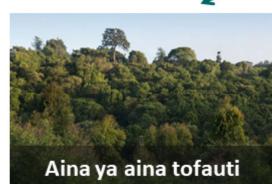
- Kuna faida nyingi za kupanda mimea ya asili katika tovuti yako ya kurejesha. Hizi ni pamoja na:
- Aina za asili zinachukuliwa na mazingira ya eneo la marejesho na kwa hivyo huwa na viwango bora vyta kuishi kuliko aina za kigeni, na huhitaji huduma ndogo ili kuanzishwa (kwa mfano kwa kumwagilia)
- Aina za asili haziwezekani kuwa vamizi.
- Kwa kuingiza aina za asili za kutishiwa au za kutumiwa, biodiverse marejesho ya kiikolojia yanaweza kuchangia ahadi za kitaifa za viumbe hai kama vile Malengo ya Mazingira ya Aichi na Malengo ya Maendeleo Endelevu.
- Kupanda aina za asili pia hutoa fursa ya kukuza mimea na maadili ya kitamaduni na vyanzo vyta dawa za jadi, ambazo zinaweza kusimamiwa kwa ustawi zinaweza kusaidia kudumisha utamaduni, ujuzi wa jadi na kutoa msaada kwa mradi kutoka kwa jumuiya za mitaa.
- Kwa kuongeza, kupanda mimea ya asili ambayo bado haikuwepo kwa sasa hutoa fursa ya kuzalisha habari mpya na muhimu juu ya aina hizi nyingi ambazo hazijitokewa na pia zinaweza kuwezesha ushirikiano wa sekta ya msalaba k.m. na taasisi za utafiti.

Msitu unaofaa ni nini?



Resilience - "Uwezo wa kupona haraka kutokana na shida"

Kuungeza msukumo wa misitu



Aina ya aina tofauti

- Panda mchanganyiko mkubwa wa aina za asili
- Usipande aina katika patches



Ufafanuzi mkubwa wa maumbile

- Kusanya nyenzo za pori kutoka vyanzo vingi iwezekanavyo
- Kusanya mbegu badala ya vipandikizi

Resilience is the capacity to recover following disturbances such as fire, pests and diseases. A more resilient forest will recover more quickly from disturbances. The key to creating a resilient forest is to plant a high diversity of species, particularly including native species, and to incorporate high genetic diversity. Find out more about sourcing material for restoration in Module 3.

Ustahamilivu ni uwezo wa kuokoa matatizo yafuatayo kama vile moto, wadudu na magonjwa. Msitu unaofaa zaidi utafufuliwa kwa haraka zaidi kutokana na shida. Muhimu wa kujenga misitu wenye nguvu ni kupanda mimea ya aina mbalimbali, hususan ikiwa ni pamoja na aina za asili, na kuingiza utofauti wa maumbile. Pata maelezo zaidi juu ya vifaa vyenye urejesho kwa ajili ya kurejeshwa katika Module 3.

Unajuaje aina gani ya miti? Ni asili?



GLOBAL TREE SEARCH

- ✓ Zaidi ya majina ya miti 60,000
- ✓ Ikiwa mti ni asili ya nchi yako
- ✓ Pakua orodha ya nchi ya miti ya asili

www.bgci.org/global_tree_search.php

How do you know which tree species are native to a particular restoration site?

GlobalTreeSearch is the world's first comprehensive list of the world's tree species developed by BGCI. It contains over 60,000 tree names and their country-level distributions and should be your first port of call to check whether a tree is native to the country where you are carrying out your restoration work. It is also possible to download a complete list of native trees for the country of interest.

Potential how to video?

Je, ungependa kujua aina gani ya miti inayotokana na tovuti fulani ya kurejesha?

GlobalTreeSearch ni orodha ya kwanza ya dunia ya aina ya miti iliyoandaliwa na BGCI. Ina majina ya miti zaidi ya 60,000 na mgawanyiko wa kiwango cha nchi zao na inapaswa kuwa bandari yako ya kwanza ya wito ili uone ikiwa mti ni asili ya nchi ambapo unafanya kazi yako ya kurejesha. Inawezekana pia kupakua orodha kamili ya miti ya asili kwa nchi ya maslahi.

Inawezekana jinsi ya video?

Je, unajuaje aina gani zilikuwapo kabla?



Angalia kipande kilichobaki cha msitu kilichosalia (msitu wa kumbukumbu)

- Uchunguzi wa mimea, transects na viwanja vinaweza kutumika
- Tumia vyeti za mimea ili kuthibitisha kitambulisho
- Ongea na jumuiya za mitaa - hasa wazee
- Kukusanya na kurekodi habari kama iwezekanavyo



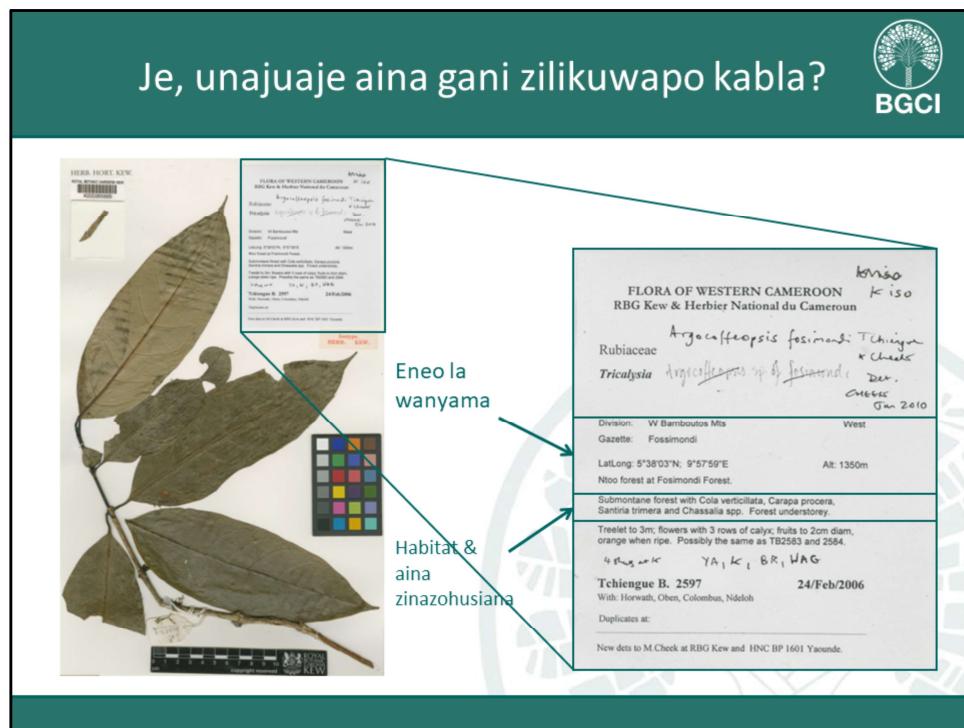
Hakuna msitu wa kutafakari = kutumia vipande vya misitu katika kanda, misitu ya msingi zaidi mbali na kumbukumbu za aina za kihistoria

How do you know which species were there before?

It is very important to identify and survey an appropriate reference ecosystem to help you decide which species are suitable for planting at the forest to be restored and to be able to measure restoration progress. This is generally accepted to mean either 200 years before present or prior to the disturbance event that has led to the need for ecological restoration.

- Botanical surveys, transects and plots can be used to determine species composition, forest structure and functionality. Botanic gardens are a good place for finding botanical experts with identification knowledge and field work skills.
- Herbarium specimens should be collected as a part of this survey and taken to a botanical expert (for example located in a herbarium or botanic garden) for verification.
- Local communities should also be consulted as species knowledge may have been recorded or be held within their oral history.
- It is important to collect and record as much information as possible.
- Without access to a remaining reference forest, species compositions can be assembled using forest fragments within the same region, and primary forests that are further away from the restoration site, but have similar altitudinal and climatic conditions. Historical and predictive species records can also be used to build up a picture of the species that the forest to be restored used to include.

- Je, unajuaje aina gani zilikuwapo kabla?
- Ni muhimu sana kutambua na kuchunguza mfumo unaofaa wa kumbukumbu ili kukusaidia kuchagua aina gani zinazofaa kwa kupanda katika misitu ili kurejeshwa na kupima maendeleo ya kurejesha. Hii inakubalika kwa ujumla kumaanisha miaka 200 kabla ya sasa au kabla ya tukio la usumbufu ambalo limesababisha haja ya kurejesha mazingira.
- Uchunguzi wa mimea, transects na viwanja vinaweza kutumika kutambua utungaji wa aina, muundo wa misitu na utendaji. Bustani za Botani ni mahali pazuri kwa kutafuta wataalamu wa mimea na ujuzi wa utambulisho na ujuzi wa kazi za shamba.
- Vipimo vya Herbarium vinapaswa kukusanya kama sehemu ya utafiti huu na kuchukuliwa kwa mtaalamu wa mimea (kwa mfano katika uwanja wa mimea au bustani ya botani) ili uhakikishe.
- Wilaya za mitaa pia zinapaswa kushauriana kama ujuzi wa aina unaweza kuwa umeandikwa au uliofanyika ndani ya historia yao ya mdomo.
- Ni muhimu kukusanya na kurekodi taarifa nyingi iwezekanavyo.
- Bila upatikanaji wa msitu uliobaki wa kumbukumbu, aina za aina zinaweza kukusanya kwa kutumia vipande vya misitu ndani ya mkoa huo, na misitu ya msingi ambayo ni mbali na tovuti ya kurejesha, lakini ina hali sawa na hali ya hewa. Kumbukumbu za kihistoria na za utabiri pia zinaweza kutumika kutengeneza picha ya aina ambazo misitu ya kurejeshwa hutumiwa.



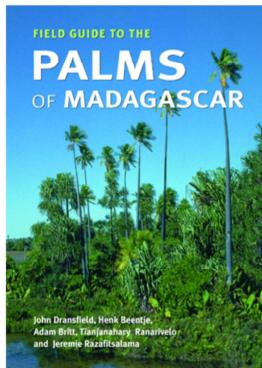
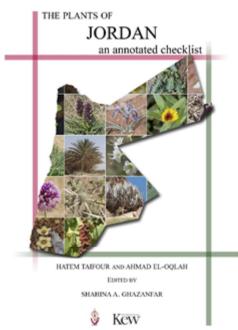
How do you know which species were there before?

Many botanic gardens have associated herbaria. Botanical specimens held within these herbariums often hold a wealth of useful information and can be used to build up a picture of what the site to be restored used to look like at certain point in time.

- Herbarium specimen labels can include information on:
 - Location data
 - Habitat information and associated species.
 - Species use
- More recently collected specimens can also have lat/longs, accompanying pictures and DNA samples. More and more specimens are being digitised and made available online.
- Je, unajuaje aina gani zilikuwapo kabla?
- Vile bustani nyingi za botani zimehusisha herbaria. Vigezo vya mimea vilivyoshikizwa ndani ya mimea hii huwa na utajiri wa habari muhimu na inaweza kutumika kutengeneza picha ya tovuti ambayo kurejeshwa hutumiwa kuonekana kama wakati fulani.
- Maandiko ya sampuli ya Herbarium yanaweza kujumuisha taarifa juu ya:
 - Data ya mahali
 - Maelezo ya Habitat na aina zinazohusiana.

- Matumizi ya aina
- Vipimo vilivyokusanywa hivi karibuni vinaweza pia kuwa na lat / kupenda, kuambatana na picha na sampuli za DNA. Vigezo zaidi na zaidi vinashughulikiwa na hupatikana mtandaoni.

Je, unajuaje aina gani zilikuwapo kabla?



Field guides, floras and checklists, many of which have been produced and published by botanist and botanic gardens are also an invaluable resources for determining which species are native to the forest to be restored.

Viongozi wa shamba, maua na orodha za orodha, ambazo nyingi zimezalishwa na kuchapishwa na bustani za mimea na mimea pia ni rasilimali muhimu sana za kuamua ni aina gani inayotokana na msitu ili kurejeshwa.

Marejesho ya uhifadhi

BGCI

IUCN Red List of Threatened Species
www.iucnredlist.org

BGCI's ThreatSearch database
www.bgci.org/threat_search.php

Global Trees Campaign
www.globaltrees.org

IUCN RED LIST

THREAT SEARCH

GLOBAL TREES CAMPAIGN

Restoration for conservation

If biodiversity conservation is a key aim of your restoration project it is important to include threatened species in your planting. Here are some useful resources to find out species which are particularly threatened by extinction. The IUCN Red List of Threatened Species holds all conservation assessments which have been assessed using IUCN criteria. BGCI's ThreatSearch database contains links to not only all IUCN red list assessments but also national assessments. Lastly the Global Trees Campaign a global conservation programme dedicated to saving the world's threatened tree species from extinction and the website provides case studies and guidance on how to incorporate threatened trees in planting programmes.

Marejesho ya uhifadhi

Ikiwa uhifadhi wa viumbe hai ni lengo kuu la mradi wako wa kurejesha ni muhimu kuingiza aina za kutishiwa katika kupanda kwako. Hapa kuna baadhi ya rasilimali muhimu ili kujua aina ambazo zinahusika na kutoweke. Orodha ya Nyekundu ya IUCN ya Wanyama walioathirika ina hesabu zote za uhifadhi ambazo zimepimwa kwa kutumia vigezo vya IUCN. Dhamana ya BGCI Search database ina viungo kwa tathmini zote za orodha ya nyekundu za IUCN lakini pia tathmini za kitaifa. Kampeni Mwisho wa Miti ya Global mpango wa uhifadhi wa kimataifa uliojitolea kuokoa aina za miti zilizohatarishwa na kuharibika na tovuti hutoa masomo na mwongozo wa kesi juu ya

jinsi ya kuingiza miti ya kutishiwa katika mipango ya kupanda.

Je! Ninaweka tena aina zote?



Mbinu za kurejesha mazingira ni pamoja na:

- Iliyasaidia upya asili
- Mfumo wa aina ya mbinu
- Mtazamo wa Miyawaki



Njia sahihi itategemea hali ya tovuti ya kurejeshwa, malengo yako ya kurudisha, upatikanaji wa bajeti na upatikanaji wa mbegu / mbegu.



Higher species diversity

+

Higher genetic diversity

=

More resilient

Do I put all the species back?

There are a number of different of approaches for selecting which and how many species to plant in your restoration project. They include:

- Assisted natural regeneration
- Framework species approach
- Miyawaki approach

The appropriate approach will depend on the condition of the site to be restored, your restoration goals, budget and seed/seedling availability. However it is important to remember that the higher the diversity of species and the higher the genetic diversity of the material planted the more resilient the restore to be restored will be.

Je! Ninaweka tena aina zote?

Kuna idadi tofauti ya mbinu za kuchagua aina gani na aina ngapi za kupanda katika mradi wako wa kurudisha. Wao ni pamoja na: Iliyasaidia upya asili Mfumo wa aina ya mbinu Mtazamo wa Miyawaki Njia sahihi itategemea hali ya tovuti ya kurejeshwa, malengo yako ya kurudisha, upatikanaji wa bajeti na upatikanaji wa mbegu / mbegu. Hata hivyo ni muhimu kumbuka kwamba juu ya aina mbalimbali za aina na juu ya

utofauti wa maumbile wa nyenzo zilizopandwa zaidi ya kurejesha kurejeshwa itakuwa.

Kuimarisha mchakato wa asili wa kuzaliwa kwa misitu



Inaweza kujumuisha zifuatazo:

- Kuondoa vikwazo vya kuzaliwa upya kama vile moto na mifugo
- Kusaidia ukuaji wa miche ya asili / saplings
- Kuhimiza kusambaza mbegu
- Kuzuia magugu

Gharama ya chini, mbinu ya chini ya teknolojia ya urejesho wa misitu

Assisted natural regeneration

Assisted natural regeneration relies almost entirely on natural processes to bring about forest recovery. Management interventions that encourage natural forest succession to proceed more rapidly (but will usually not including tree planting). For example:

- Removing barriers to regeneration such as fire and livestock
- Assisting the growth of native seedlings/saplings
- Encouraging seed dispersal for example by installing artificial bird perches to increase the dispersal of tree seeds from nearby intact forests.
- Suppressing weeds?

Assisted regeneration is a low cost, low tech approach to forest restoration.

Iliyasaidia upya asili

Urejesho wa kawaida wa asili unategemea karibu kabisa juu ya michakato ya asili ili kuleta uponaji wa misitu. Mipango ya usimamizi inayohimiza mfululizo wa msitu wa asili kuendelea kwa kasi zaidi (lakin kwa kawaida sio pamoja na kupanda miti). Kwa mfano:

Kuondoa vikwazo vya kuzaliwa upya kama vile moto na mifugo

Kusaidia ukuaji wa miche ya asili / saplings

Kuhimiza mbegu za kusambaza kwa mfano kwa kuanzisha pembe za ndege za bandia ili kuenea kwa mbegu za miti kutoka misitu iliyokaribu.

Kuzuia magugu?

Upyaji wa kusaidiwa ni gharama nafuu, mbinu ya chini ya teknolojia ya urejesho wa misitu.

Mfumo wa aina ya mbinu



- Kupanda aina za mti wa msitu ambazo ni mfano wa msitu unaotengwa ili kuvua magugu na kuvutia watangazaji wa mbegu ambao kwa kawaida huleta mbegu kutoka kwa aina nyininge.
- Ufanisi zaidi kuliko njia ambazo hupanda aina mbalimbali za aina.



Framework species approach

The framework species method involves planting mixtures of indigenous forest tree species that are typical of the target forest ecosystem and share certain ecological characteristics such as being able to shade out weeds. This method is suitable where there is remaining forest within travelling distance of seed dispersers. It is much more cost effective than methods that plant a higher diversity of species.

It is important to plant 20-30 (or roughly 10% of the estimated number of tree species in the target forest, if known) that:

- Are fast growing
- Have a spreading canopy
- Produce edible fruits at an early stage
- *Trema* species for example tend to be fast growing species with a spreading crown which produced fruit at an early stage.

Mfumo wa aina ya mbinu

Njia ya aina huhusisha kupanda mchanganyiko wa aina za miti ya misitu ambayo ni ya kawaida ya mazingira ya misitu yenye lengo na kushiriki sifa fulani za kiikolojia kama vile uwezo wa kuvua magugu. Njia hii inafaa ambapo kuna msitu uliobaki ndani ya

umbali wa safari ya wasambazaji wa mbegu. Ni gharama kubwa zaidi kuliko njia ambazo hupanda aina mbalimbali za aina.

Ni muhimu kupanda 20-30 (au takribani 10% ya idadi ya mti wa miti ya msitu, ikiwa inajulikana) kwamba:

Ni kukua kwa haraka

Kuwa na mto wa kueneza

Kuzalisha matunda ya chakula katika hatua ya mwanzo

Aina ya Trema kwa mfano huwa ni aina za kukua kwa kasi na taji inayoenea ambayo ilitoa matunda katika hatua ya mwanzo.

Mfumo wa aina ya mbinu



Panda aina 20 - 30 za asili ambazo:

- Ni kukua kwa haraka
- Kuwa na mto wa kueneza
- Kuzalisha matunda ya chakula katika hatua ya mwanzo

Trema orientalis (Pigeon wood)

- ✓ *Trema orientalis* (kuni ya njiwa)
- ✓ Aina ya kukua kwa haraka
- ✓ Kueneza taji
- ✓ Inazalisha matunda katika hatua ya mwanzo
- ✓ Imegawanywa kwa kiasi kikubwa katika kitropiki



It is important to plant 20-30 (or roughly 10% of the estimated number of tree species in the target forest, if known) that:

- Are fast growing
- Have a spreading canopy
- Produce edible fruits at an early stage
- *Trema* species for example tend to be fast growing species with a spreading crown which produced fruit at an early stage.

Ni muhimu kupanda 20-30 (au takribani 10% ya idadi ya mti wa miti ya msitu, ikiwa inajulikana) kwamba:

Ni kukua kwa haraka

Kuwa na dari iliyoenyea

Kuzalisha matunda ya chakula katika hatua ya mwanzo

Aina ya *Trema* kwa mfano huwa ni aina za kukua kwa kasi na taji inayoenea ambayo ilitoa matunda katika hatua ya mwanzo.

Mtazamo wa Miyawaki



Aina zote hupandwa nyuma kwenye tovuti ya kurejesha



Faida:

- ✓ Hakuna mgawanyiko wa mbegu za asili zinazohitajika kuwepo
- ✓ Yanafaa kwa thamani ya juu, maeneo midogo ya mijini
- ✓ Msitu unaofufuliwa ni uwezekano wa kuwa na nguvu

Hasara:

- ✗ Mkubwa sana (miti 20,000-30,000 / ha)
- ✗ Ghali sana (ni US \$ 9,000 + / ha)
- ✗ Siofaa kwa marejesho makubwa

Miyawaki approach

The Miyawaki approach is where all species are planted back into the restoration site at high densities to encourage trees to grow straight and not to branch too early and to again quickly provide a closed canopy to prevent weeds.

Advantages include

- No natural seed dispersers need to be present
- It is suitable for high value, small urban sites
- Due to the high species diversity the resulting forest is more likely to be resilient to disturbances

However there are also disadvantages a

- It is very intensive and expensive. In the tropics this also means being able to grow and source a high diversity of species which may not be possible.
- It is therefore not really feasible on a large scale.

Mtazamo wa Miyawaki

Njia ya Miyawaki ni pale ambapo kila aina hupandwa nyuma kwenye tovuti ya kurejesha kwa dalili za juu ili kuhamasisha miti kukua moja kwa moja na sio tawi

mapema sana na tena kutoa haraka kumaliza kuzuia magugu.

Faida ni pamoja na

Hakuna mgawanyiko wa mbegu za asili zinazohitajika kuwepo

Inafaa kwa thamani kubwa, maeneo midogo ya miji

Kutokana na aina tofauti za aina mbalimbali msitu unaosababishwa ni uwezekano
mkubwa wa kuwa na suala la kuvuruga

Hata hivyo kuna pia hasara a

Ni kubwa sana na ya gharama kubwa. Katika kitropiki hii pia inamaanisha kuwa na
uwezo wa kukua na kutoa chanzo cha aina tofauti ambazo haziwezi iwezekanavyo.

Kwa hivyo si kweli inayowezekana kwa kiasi kikubwa.

- Aina za asili = viwango vya juu vya maisha, uhifadhi wa viumbe hai na wakati huo huo unaweza kutoa dawa na bidhaa za chakula.
- Tumia ujuzi wa mimea unaopatikana ndani ya bustani za mimea ya mimea ili kusaidia kwa dawati na kazi ya shamba.
- Aina kubwa na utofauti wa maumbile = msitu wenye nguvu zaidi.
- Mfumo wa marejesho ya kiikolojia utatambuliwa na malengo ya mradi wako.
- Ikiwa aina zisizo za asili zimepandwa, tahadhari ili kuhakikisha kuwa hawana kuwa mbaya!

In summary

- We recommend using native species as they are likely to have higher survival rates, contribute to biodiversity conservation and can provide medicine and food products.
- Make use of botanical expertise found within botanic gardens to assist with deskwork (herbarium vouchers/resources) and practical field work.
- High species and genetic diversity make a more resilient forest
- Which restoration approach you select will depend on the goals of your project.
- And finally in cases where a decision is made to plant non-native species, for example to act as nurse species or prevent soil erosion – take great care to ensure that the species selected will not become invasive.

Now you are ready to learn how to source material for your restoration project!

kwa ufupi

Tunapendekeza kutumia aina za asili kama zinawezekana kuwa na viwango vya juu vya maisha, huchangia katika uhifadhi wa viumbe hai na inaweza kutoa dawa na bidhaa za chakula.

Tumia ujuzi wa mimea unaopatikana ndani ya bustani za mimea ya mimea ili kusaidia

na dawati (vyeti vya yeti / rasilimali) na kazi ya shamba.

Aina kubwa na utofauti wa maumbile hufanya msitu wenyewe nguvu zaidi

Njia gani ya kurejesha unayochagua itategemea malengo ya mradi wako.

Na hatimaye katika hali ambapo uamuzi unafanywa kupanda aina zisizo za asili, kwa mfano kufanya kama aina ya muuguzi au kuzuia mmomonyoko wa udongo - tumia vizuri ili kuhakikisha kwamba aina zilizochaguliwa hazitakuwa zile.

Sasa uko tayari kutegemea jinsi ya kuzalisha nyenzo kwa ajili ya mradi wa kurejesha!



Sourcing vifaa kwa ajili ya mradi wako wa kurejesha! (Module 3 ...)

(Module 3...)

In summary

- We recommend using native species as they are likely to have higher survival rates, contribute to biodiversity conservation and can provide medicine and food products.
- Make use of botanical expertise found within botanic gardens to assist with deskwork (herbarium vouchers/resources) and practical field work.
- High species and genetic diversity make a more resilient forest
- Which restoration approach you select will depend on the goals of your project.
- And finally in cases where a decision is made to plant non-native species, for example to act as nurse species or prevent soil erosion – take great care to ensure that the species selected will not become invasive.

Now you are ready to learn how to source material for your restoration project!

kwa ufupi

Tunapendekeza kutumia aina za asili kama zinawezekana kuwa na viwango vyatuu
vyatuu maisha, huchangia katika uhifadhi wa viumbi hai na inaweza kutoa dawa na
bidhaa za chakula.

Tumia ujuzi wa mimea unaopatikana ndani ya bustani ya mimea ili kusaidia na dawati
(vyeti vyatuu / rasilimali) na kazi ya shamba.

Aina kubwa na utofauti wa maumbile hufanya msitu wenyewe nguvu zaidi
Njia gani ya kurejesha unayochagua itategemea malengo ya mradi wako.
Na hatimaye katika hali ambapo uamuzi unafanywa kupanda aina zisizo za asili, kwa
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Sasa uko tayari kutegemea jinsi ya kuzalisha nyenzo kwa ajili ya mradi wa kurejesha!



Connecting People • Sharing Knowledge • Saving Plants

Our Mission is to mobilise botanic gardens and engage partners in securing plant diversity for the well-being of people and the planet

Descanso House, 199 Kew Road, Richmond, Surrey, TW9 3BW, UK

www.bgci.org

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