

Botanic Gardens Conservation International

The world's largest plant conservation network



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Plants for the Planet

Module 1: Planning a Collection





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- Permission
- Logistics
- Safety
- Your team
- Equipment



Ensure collecting is done legally

- seek permission from landowners and managers **before** collecting seed.
- Collecting from rare or threatened species, protected areas, or countries rich in biodiversity? A collecting **permit is a legal requirement.**



Permission



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Failure to obtain the required documents can delay operations, jeopardize future efforts or result in prosecution!



Permission



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Check target species are not protected

e.g.

CITES



<http://www.cites.org>

e.g.

The Bern Convention



<http://conventions.coe.int/Treaty/EN/Treaties/Html/104.htm>

e.g.

National Protected Species



LISTA DE ESPECIES EN PELIGRO DE EXTINCIÓN,
AMENAZADAS O PROTEGIDAS
DE LA REPÚBLICA DOMINICANA
LISTA ROJA

Permission



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Rules differ depending on country and who owns the land.

e.g.

UK

Collecting species included in [Schedule 8 of Wildlife and Countryside act \(1981\)](#)

requires a specific permit from the relevant statutory conservation agencies: Natural England, Natural Resources Wales or Scottish Natural Heritage



e.g.

Australia

permission from traditional landowners may be required as some plants can have special significance and cannot be touched (e.g. totemic plants)



Take advice from local collaborators, government offices, and biologists.

Contacts: <http://www.cbd.int/information/nfp.shtml>

Permission



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You may need permission for:



Permission



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Things to consider:

- Access: Liaise with local site management.
- Insurance e.g. health and safety assessments.
- Personal documentation e.g. entry visas, work permits and international health certificates.
- Specimens for a national institution may be a condition of permission
- Contact the national plant health authorities if seeds are to be moved to other countries



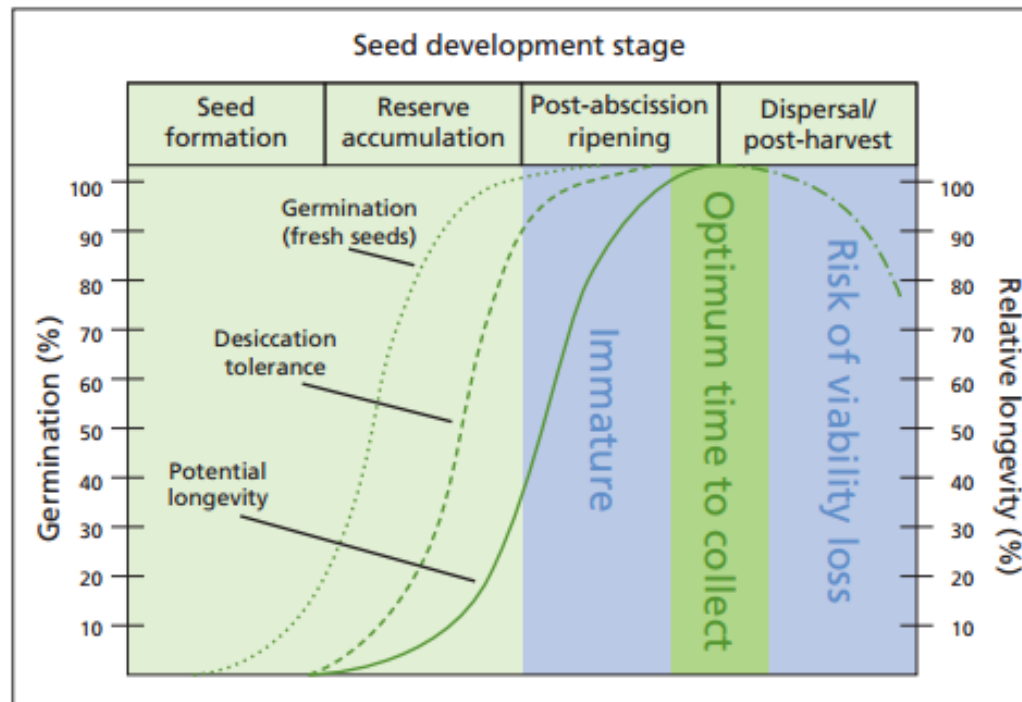
Logistics: Timing



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Collect at point of seed dispersal to maximise longevity in storage

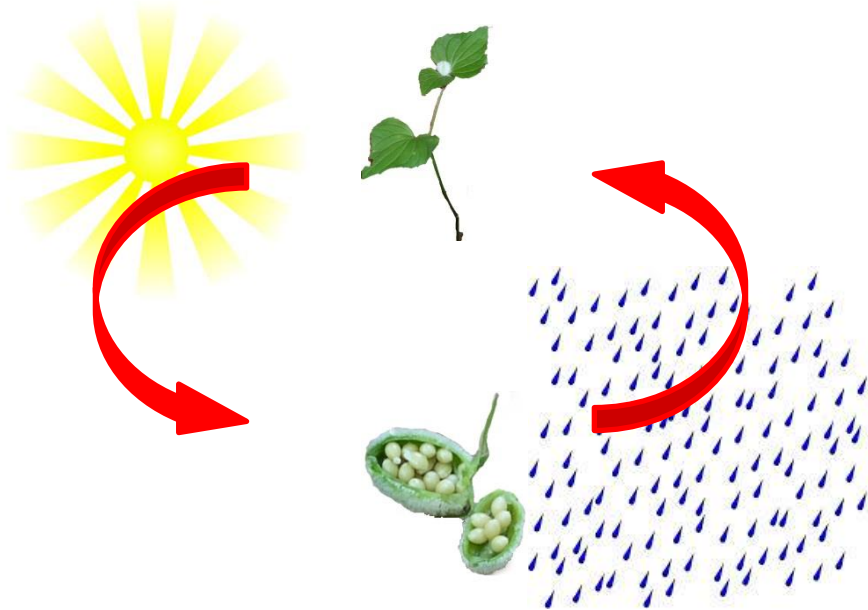


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Logistics: Timing

Phenology:

Varies between species and years depending on weather and other factors. Herbarium data only an estimate.



e.g.

“... in the case of NW European herbaceous species, an extra 1.5-2 months is a useful guide for the time between peak flowering and peak seeding...”

(ENSCONET, 2009)

Logistics: Timing



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An up-to-date seed collection calendar helps plan trips.

STEP 3: Develop a seed collection calendar

Based on your initial research, develop a seed collection calendar as a means to plan trips to the field. Include information on when your species is expected to (a) to flower, (b) produce immature fruits and (c) when these fruits are likely to mature (and therefore be ready for collection). You might find it helpful to include notes on how to identify flowers, immature or mature fruits in the field.

Species	J	F	M	A	M	J	J	A	S	O	N	D	Notes
	Bu = Buds; Fl = Flowering; Im = Immature Fruits; M = Mature Fruits												
Species 1		Bu	Fl	Fl	Fl	Im	M						Fruits turn black when ripe
Species 2	Bu	Fl	Fl			Im	Im	M					Rainy season triggers fruiting
Species 3	Bu/Fl	Fl	Im	M			Bu	Fl	Im	M			Fruits turn from green to red when ripe

Note that the phenology of a given species may vary (a) from year to year or (b) between populations found in different locations. This may be related to the physiology of the species itself or due to climatic fluctuations.

Therefore it's essential to improve the accuracy of your seed collection calendar by monitoring actual changes in the phenology of your target species during collection trips. It might be helpful to take photographs of different reproductive stages, and record the date they were taken, to guide future field trips.

Photographs of different reproductive stages for *Cyphomandra diploconos*, a small tree from Southern Brazil



Flowers at different stages of maturity

Flowers with very young fruits in the same inflorescence

For this species, a transverse section reveals differences between mature and immature fruits. Here, an immature fruit has a hard, white flesh with underdeveloped seeds

Mature fruits for this species have juicy, yellow flesh with fully developed seeds ready for collection

TOP TIP

Having a seed collection calendar is particularly helpful for certain species. Trees with *dehiscent fruit* (dry fruit that split open to release their seeds) must be harvested before seeds are dispersed and scattered far from the mother tree.

For species with *fleshy fruits*, mature fruits must be harvested before they are all predated by animals.

(Global Trees Campaign, 2013)

Logistics: Location

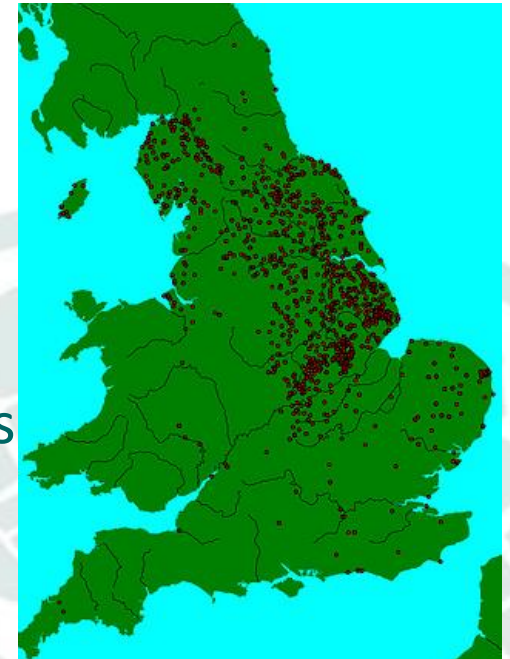


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Research:

- local botanists and plant ecologists
- Eco-geographic surveys
- Inventories
- Distribution maps in floras
- Chronological accounts in botanical journals
- Herbarium sheets
- Reconnaissance trips and surveys
- satellite vegetation imagery



Logistics: transport



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Don't waste time!

Ensure enough vehicles are available/hired and routes are passible.



Plan ahead!

- Rapid movement of fruits from collection site might be needed.
- Advise seed extractory staff when to expect fruits.





Protocol:

- Insurance relevant to conditions you will face (terrain and weather)
- Follow bio-security and plant health procedures to prevent the spread of pathogens
- Be familiar with your occupational health and safety policies

Your equipment:

- Appropriate clothing and personal protective equipment
- Plenty of water for drinking and washing hands (especially if handling poisonous or irritating seeds)
- Check all safety equipment before you leave



Plan ahead:

- Give your itinerary to someone who will take action if regular pre-arranged contact is lost.
- Don't go into the field with fewer than three people
- Check weather, road and fire reports
- Make contingency plans
- Carry appropriate telephone numbers



Your team



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Ensure you have the right people for the job

e.g.

- Navigators
- Seed collectors
- Tree climbers
- First aiders



Equipment



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Using the correct equipment:

- Makes collecting easier
- Ensures your seeds will be effectively banked
- Prevents accidents

Equipment



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Equipment for collecting seed



Equipment for storing seed



Personal Protective
Equipment



Safety gear



Equipment



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Equipment will vary depending on terrain and species of interest.

Equipment lists

- [Global Trees Campaign, 2013. p.4](#)



GLOBAL TREES
CAMPAIGN

5 How to collect seeds from threatened trees species

STEP 4: Acquire field equipment

- GPS and extra batteries.
- Tree-climbing equipment (including ropes, a helmet, harness).
- Compass and Topographic maps
- Tree loppers.
- Weather-resistant field notebooks; mechanical pencils.
- Secateurs.
- Binoculars for identifying tall trees (looking at leaves, flowers, fruits in the canopy).
- Throw lines and weighted bags (for facilitating fall of seeds).
- Camera for recording plant features – or equipment to ID flowers later.
- Tarpaulin or buckets (for collecting falling seeds).
- Food, water, personal gear and mobile phone
- Mesh bags (for tying round seed heads awaiting seed dispersal).
- First-aid kit.
- Wicker basket, paper bags or breathable containers (for temporary storage of fruits and seeds).
- Field guide or notes for identification.
- A cool box.





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End of Module One (Planning a Collection)

Why not try the [quick quiz?](#)

Then, go to Module Two [\(Prioritisation and pre-collection assessment\)](#)



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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

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