

Botanic Gardens Conservation International  
*The world's largest plant conservation network*



**BGCI**

*Plants for the Planet*

# 模块2： 确定重点和采集前评估





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*Plants for the Planet*

- 为什么要计划？
- 确定重点
- 勘探
- 采集什么，地点，时间，如何采
- 数量
- 质量



# 为何要计划？

确保在正确的地点正确的时间快速和有效地采集  
采集时尤其重要的是：



- 无法进入的，多物种自然林
- 来自于不同来源和广布种
- 不同国家具有不同的规则

# 确定重点



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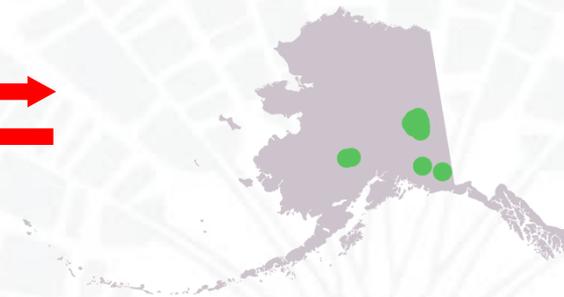
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先决定要采集的物种，  
然后寻找地点

先决定采集地点，然后  
确定要采集的物种



或者



# 确定重点



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## 重点物种的决定取决于国家和机构目标

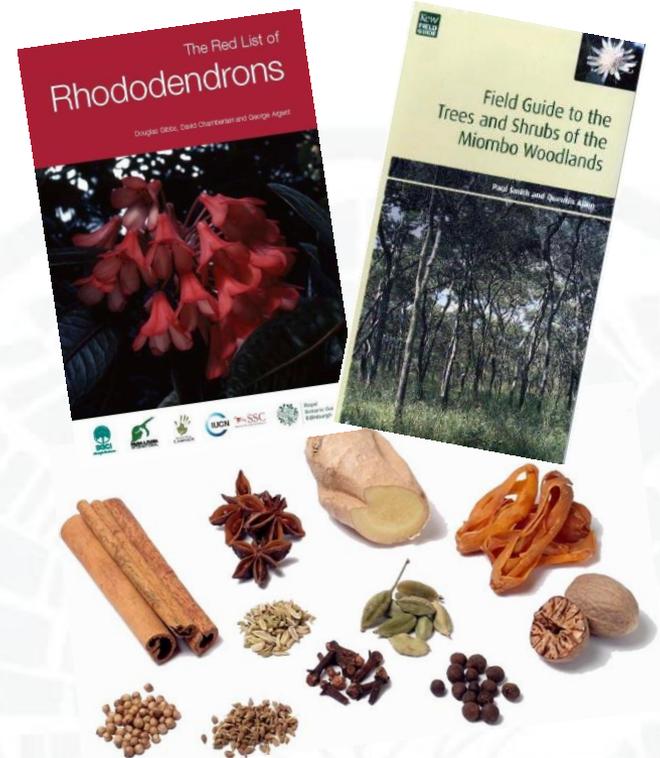
如：千年种子库项目

3个E：

**濒危物种：**极度濒危，濒危或易危物种或  
生境

**特有物种：**一个区域的本地物种，既不  
是引入物种也不是泛热带杂草

**有经济价值的物种：**被人们使用的物种



# 确定重点



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## 确定优先采集物种的其它标准包括:

- 正统性种子: 干燥和冷冻后保持活性的物种
- 研究所需物种
- 稀有种子: 没有库存的或者不容易获得的

Where am I? > Home > Kew Databases > Seed Information Database

### Seed Information Database – SID

(release 7.1, May 2008)

SID is a compilation of seed biological trait data from the MSBP's own collections and from other published and unpublished sources. Its primary purpose is as an internal source of a variety of seed biological information; for use in large scale analysis and decision support for seed conservation operations.

[Citing SID](#)

Search the Seed Information Database	
APG Clade	<input type="text"/>
APG Order	<input type="text"/>
Family	<input type="text"/>
Genus	<input type="text"/>
Species	<input type="text"/>
Storage Behaviour	<input type="text" value="Orthodox"/>

Only find records with data on:

Storage Behaviour  Weight  Dispersal  Germination  
 Oil Content  Protein Content  Morphology  Salt Tolerance

Seed Information Database

What's new in SID release 7.1?

About the database

Current Modules

- ▶ Storage Behaviour
- ▶ Seed Weights
- ▶ Seed Dispersal
- ▶ Germination
- ▶ Seed Oil Content
- ▶ Seed Protein Content
- ▶ Plant Life-form
- ▶ Seed Morphology (incl. images)
- ▶ Salt Tolerance
- ▶ Seed Viability Constants

Tips for searching the database

Search the Database

Citing the Database

Coming Soon

Useful Links

Feedback

Potential Collaborations

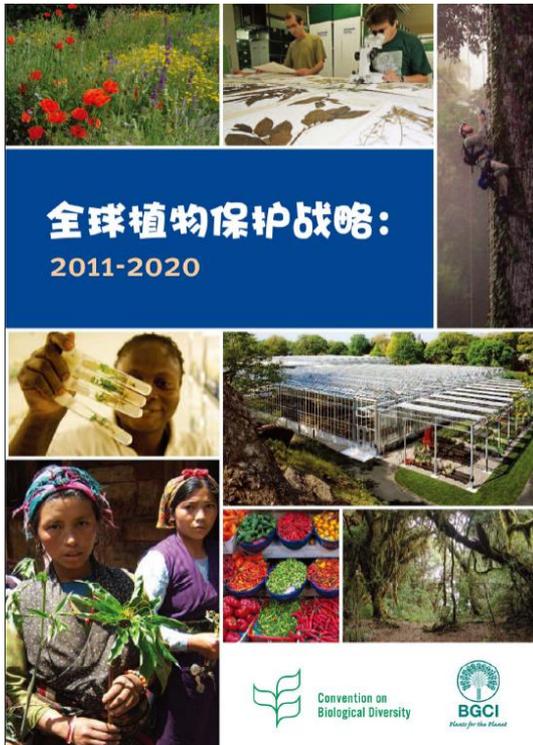
<http://data.kew.org/sid/>

# 确定重点



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《全球植物保护战略》 GSPC目标8:  
至少75%的濒危植物物种得到迁地保护（最好在其原产国），其中20%用于恢复项目。

<https://www.bgci.org/policy/gspc/>

# 确定重点



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GLOBAL  
SEED  
CONSERVATION  
CHALLENGE

全球有400多个植物园参与了种子库项目。全球种子保护挑战（GSCC）将通过培训、确定优先种子采集、奖项设置和分享相关知识提高植物园对执行GSPC目标8的贡献

<https://www.bgci.org/plant-conservation/seedconservation/>

# 确定重点



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## 分享数据有助于确定优先采集的种子！

### 如：植物查询数据库

- 植物园迁地栽培植物全球数据库和其它类似机构种子库收集的分类单元级别数据
- 该数据库用于衡量GSPC目标8的执行进展

Welcome to PlantSearch!

**Plant Search** The only global database of living plant, seed and tissue collections:

- Search 1,314,297 collection records, representing 467,892 taxa, at 1,101 contributing institutions
- Locate threatened, rare, medicinal and other plant species in living collections
- Connect with living collections to aid your conservation, education and research efforts

Enter search criteria below (all fields optional)

Scientific name:     Exclude cultivar names

Genus Species Intraspecific Epithet

Conservation Status: IUCN Red List 2013 -- Please Select -- Additional Status: Crop Wild Relative -- Please Select --

IUCN Red List 1997 -- Please Select --  Medicinal plant species

CITES listed species

Threatened Global Trees Campaign species

Which IUCN list should I choose?

[https://www.bgci.org/plant\\_search.php](https://www.bgci.org/plant_search.php)

# 勘探

## 目标物种：

- 什么物种？

濒危的	有用的	特有的
		

- 哪里可以找到？

沙漠	路边	森林
		

# 勘探

- 什么时候成熟？春天，夏天，秋天

春天	夏天	秋天
		

- 你能鉴定是哪个种吗？



# 资源

- 命名— Plant List, Tropicos, IPNI
- 地点: IUCN, 红色名录, GBIF, 名录, 标本馆标本
- 物候: 标本馆标本, Pep725
- 鉴定: 专著, 植物志, 生物多样性遗产库, 标本馆标本
- 濒危状况: IUCN红色名录, 国家红色名录

# 什么物种？



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## 目标物种— *Echinopsis albispinosa* K.Schum.



The Plant List → *Echinopsis albispinosa* K.Schum.

☆☆ *Echinopsis albispinosa* K.Schum. is a synonym of *Echinopsis tubiflora* (Pfeiff.) Zucc. ex A.Dietr.

← 异名：同一物种不同名称

This name is a synonym of *Echinopsis tubiflora* (Pfeiff.) Zucc. ex A.Dietr..

The record derives from WCSP (in review) (data supplied on 2012-03-23) which reports it as a synonym with original publication details: *Monatsschr. Kakteenk.* 13: 154 1903.

☆☆ *Echinopsis tubiflora* (Pfeiff.) Zucc. ex A.Dietr. is an accepted name

接受名的信息

This name is the accepted name of a species in the genus *Echinopsis* (family *Cactaceae*).

### *Echinopsis albispinosa*



← 濒危的



*Echinopsis tubiflora* (Pfeiff.) Zucc.

Categoría PlanEAR:	4
Familia:	Cactaceae
Sinónimos:	--
UICN 2008:	--
Actualización:	2008
Observaciones:	Crece entre 500-1000 m s. m. (Kiesling, 1999).
Provincias:	Salta, Tucumán
Países:	Argentina
Expertos:	--
Bibliografía:	<ul style="list-style-type: none"><li>Backeberg, C. 1959. Die Cactaceae 2: 639-1360.</li><li>Kiesling, R. 1999. Cactaceae, en F. O. Zuloaga &amp; O. Morrone (eds.), Catálogo de las Plantas Vasculares de la República Argentina. II. Dicotyledoneae. Monogr. Syst. Bot. Missouri Bot. Gard. 74: St. Louis.</li></ul>

← 特有的



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# 哪里可以找到？

## 目标物种 - *Echinopsis albispinosa* K.Schum.

*Echinopsis albispinosa*



<b>Range Description:</b>	This species is endemic to Argentina, where it occurs in Salta and Tucumán (Hunt et al. 2006). It grows at elevations of 750 to 1,600 m asl.
<b>Countries:</b>	<b>Native:</b> Argentina (Salta, Tucumán)
<b>Range Map:</b>	<a href="#">Click here to open the map viewer and explore range.</a>
<b>Conservation Actions:</b>	The species may occur within <u>Parque Provincial Quebrada de las Conchas</u> .

地点  
更多信息  
海拔



# 何时结果？



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## 目标物种 – *Echinopsis albispinosa* K.Schum 标本馆标本，植物志

花

数据采集  
日期



View

View item at  
Muséum national d'Histoire  
naturelle

Share

Cite on Wikipedia

Translate details

Select language

Powered by Microsoft Translator

*Echinopsis tubiflora* (Pfeiff.) Zucc. ex A.Dietr.

**Contributor:**  
N. Goodall (collector); C. Tirel (collector)

**Geographic coverage:**  
Argentina; Prov. Corrientes; Dept. Paso de los Libres Route 23, coté est du Rio Mirinay. Argentina, América do Sul

**Date:**  
1973-11-4 (gathering)

**Type:**  
Preserved Specimen

**Identifier:**  
MNHN - P - P04596230

**Relation:**  
[http://www.biodiversitylibrary.org/name/Echinopsis\\_tubiflora\\_\(Pfeiff%24\)\\_Zucc%24\\_ex\\_A%24Dietr%24;](http://www.biodiversitylibrary.org/name/Echinopsis_tubiflora_(Pfeiff%24)_Zucc%24_ex_A%24Dietr%24;) <http://rs.tdwg.org/dwc/dwctype/PreservedSpecimen>

**Source:**  
MNHN - Collection of herbarium specimens

**Data provider:**  
Muséum national d'Histoire naturelle

**Provider:**  
OpenUp!

**Providing country:**  
France

Other items you may be interested in:

**Geographic coverage:**

Argentina; Prov. Corrientes; Dept. Paso de los Libres Route 23, coté est du Rio Mirinay. Argentina, América do Sul

# 你能鉴定该物种吗？



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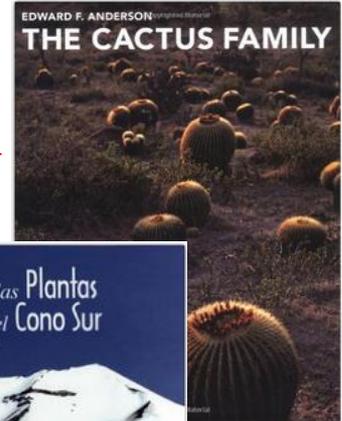


Browse by: Title Author Date Collection Contributor ADVANCED SEARCH

Bibliography for *Echinopsis tubiflora* by Page View in PDF View Name Sources Download CSV Download BibTeX Download EndNote

Title #	Authors	Volume	Date	Page #	View
Abhandlungen der Königlich-Akademie de	Deutsche Akademie der Wissenschaften zu E	1899-1900	1899-1900	Page 57	
Anales del Museo Nacional de Buenos Aires	Museo Nacional de Buenos Aires.	ser.3:4-4 (1905)	1905	Page 486	
Anales del Museo Nacional de Montevideo.	Museo Nacional de Montevideo	v.5 = 1.2 (Flora Uruguay)	1901	Page 252	
Beilage zum botanischen Centralblatt.		Bd.13 1902	1891-1902	Page 168	
Belgique horticole.	Morren, Charles, Morren, Edouard,	L.16 (1866)	1866	Page 132	
The Book of gardening: a handbook of horti	Abbott, J. M. Drury, William D.,	(go to volume)	1900	(go to page)	
Botanisches Zentralblatt: referierendes Org	Association internationale des botanistes. Botanischer Verein, Munich. Botaniska sällskapet, Stockholm. Deutsche Botanische Gesellschaft.	jahrg. 29, bd.108 (1908)	1908	Page 135	
Botanisches Zentralblatt: referierendes Org	Association internationale des botanistes. Botanischer Verein, Munich. Botaniska sällskapet, Stockholm. Deutsche Botanische Gesellschaft.	jahrg. 34, bd.123 (1913)	1913	Page 505	
Botanisches Zentralblatt: referierendes Org	Association internationale des botanistes. Botanischer Verein, Munich. Botaniska sällskapet, Stockholm. Deutsche Botanische Gesellschaft.	jahrg. 40, bd.141 (1919)	1919	Page 202	
The Bradley bibliography: a guide to the lit	Rehder, Alfred, Sargent, Charles Sprague,	v.3	1911-18.	Page 622	
Bulletin of the Torrey Botanical Club.	Torrey Botanical Club.	v.41 (1914)	41	Page 315	
The Cactaceae: descriptions and illustration	Britton, Nathaniel Lord, Rose, J. N.	v.3	1922	Page v	
The Cactaceae: descriptions and illustration	Britton, Nathaniel Lord, Rose, J. N.	v.3	1922	Page 61	
The Cactaceae: descriptions and illustration	Britton, Nathaniel Lord, Rose, J. N.	v.3	1922	Page 65	
The Cactaceae: descriptions and illustration	Britton, Nathaniel Lord, Rose, J. N.	v.3	1922	Page 67	

## 物种描述



9. *Echinopsis turbinata* Zuccarini in Pfeiffer and Otto, Abbild. Besch. Cact. 1: under pl. 4. 1839. *Cereus turbinatus* Pfeiffer, Allg. Gartenz. 3: 314. 1835. *Echinoncyctanthus turbinatus* Lemaire, Cact. Gen. Nov. Sp. 84. 1839. *Echinoncyctanthus turbinatus pictus* Monville in Lemaire, Cact. Gen. Nov. Sp. 84. 1839. *Echinopsis gemmata* Schumann in Martin, Fl. Bras. 4: 251. 1899.

Simple or somewhat clustered, globose; ribs 13 or 14, broad at base, hardly undulate; spines several, 7 mm. long or less; flowers appearing from upper areoles, about 15 cm. long, with a strong odor of jasmine and citron; inner perianth-segments white, acuminate; stamens and style shorter than the perianth-segments, but projecting beyond the throat; scales on tube and ovary small, woolly in their axils.

Type locality: Not cited.

Distribution: Province of Entre Rios, Argentina.

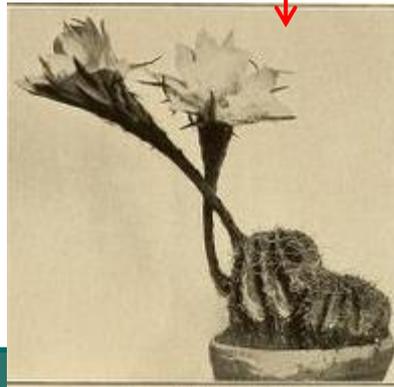
*Cereus himineus* and *Echinocactus turbinatus* (Pfeiffer, Enum. Cact. 72. 1837), as synonyms for *Cereus turbinatus*, doubtless belong here.

*Echinocactus gemmatus* Link and Otto (Verh. Ver. Beförd. Gartenb. 6: 431. 1830), only a name, is doubtless to be referred here, while *Cereus gemmatus* Otto (Allg. Gartenz. 3: 314. 1835, not Verh. Ver. Beförd. Gartenb. 6: 431. 1830, as cited by Schumann) was published as a synonym of *Cereus turbinatus*. For this reason we have substituted *Echinopsis turbinata* for *E. gemmata*, the name generally used for this plant.

Walpers refers to the following as an undescribed species: *Echinopsis picta* Walpers (Repert. Bot. 2: 324. 1843; *Echinoncyctanthus pictus* Lemaire, Cact. Gen. Nov. Sp. 84. 1839, *vide* Walpers, but in error), as synonym. This probably belongs here also. *Echinopsis turbinata picta* (Walpers, Repert. Bot. 2: 275. 1843) is only a listed name.

Of this relationship are the following: *Echinopsis schelhasii* Pfeiffer and Otto (Abbild. Besch. Cact. 1: under pl. 4. 1839; *Echinoncyctanthus schelhasii* Lemaire, Cact. Gen. Nov. Sp. 84. 1839); *Cereus schelhasii* Pfeiffer (Allg. Gartenz. 3: 314. 1835), *Echinopsis schelhasii rosea* Rümpler (Fürster, Handb. Cact., ed. 2: 623. 1885), *Echinopsis gemmata schelhasii* (Schelle, Handb. Kakteenk. 113. 1907), *Echinopsis decaisneana* Walpers (Repert. Bot. 2: 324. 1843; *Echinoncyctanthus decaisneanus* Lemaire, Cact. Gen. Nov. Sp. 55. 1839; *Echinocactus decaisnei* Stuedel, Nom. ed. 2: 1: 536. 1840; *Echinopsis gemmata decaisneana* Schelle, Handb. Kakteenk. 113. 1907), *Echinopsis jamesiana* (Salm-Dyck, Cact. Hort. Dyck. 1849. 38. 1850) and *Echinopsis falcata* Rümpler (Fürster, Handb. Cact. ed. 2: 622. 1885).

\* According to Walpers, but in error.



# 你能鉴定该物种吗？



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- 关键-在同一属内的物种不要混淆！

几个刺 →



*Echinopsis tubiflora*



← 没刺

*Echinopsis subdenudatus*

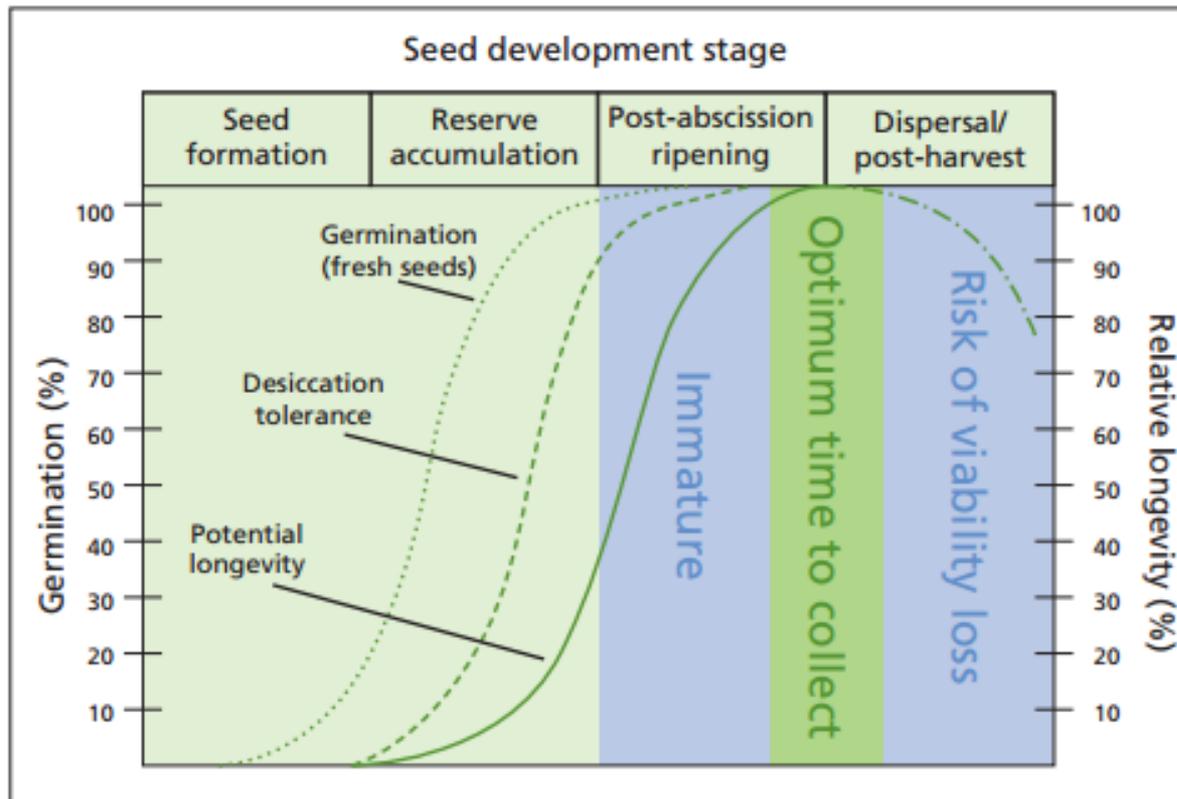
# 你能鉴定该物种吗？

- 什么是居群？
  - 占据一个限定地理范围内的能够相互繁育的一组个体
  - 不同物种的居群看起来是不同的



# 质量

目标：采集健康种子；当种子成熟的时候采集种子



# 质 量



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Berry 浆果	Drupe 核果	Pome梨 果	Hesperidium 柑果	Pseudocarp 假果	Follicle 蓇葖果	Legume 荚果	Samara 翅果
							

Nut 坚果	Achene 瘦果	Hip 蔷薇果	Utricle 胞果	Cypsela 连萼瘦果	Capsule 蒴果	Silique 长角	Syconium 隐头果	Lomentum 节荚果
								

不同类型的果实以不同方式展示成熟

# 质 量



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果实颜色的变化



果实裂开



有些种子已经散开了



坚硬且干燥的果实和种子



## 确定种子的物理性质

- 空的/昆虫破坏/不熟/变形的
- 切开检验



- 切开-从一个居群内相隔适当距离的几个个体内采集10颗种子
- 如果种子很小，在切开过程中用胶带固定它们
- 如果种子很小，使用放大镜去观察

**旨在采集到健康的种子！**

# 质量

需要多少种子？		
	活动	所需种子量
保护	基本收集，以防： <ul style="list-style-type: none"><li>● 野外居群消失</li><li>● 收集重建需要</li></ul>	500
维持	制定萌发规程	100
	200年后活力监测	650
备份	为安全起见，将种子放在另一个种子库中贮藏和监测	1150
分发	200年间，每隔一年将50颗种子发送给使用者	5000
繁殖与恢复	在植物园里栽培用于展示和恢复项目	10000
总共		>20000

# 质量



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## 采集计划：

- 每个居群采集至少50个个体
- 采集尽可能多的居群
- 采集当天采集不超过可得到的成熟种子的20%
- 理想来说>10-20000有活力的种子

**旨在采集一个大的样品！**

# 采集前清单



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EXAMPLE OF A PRE-COLLECTION CHECKLIST  
(developed for a conservation and restoration project)

EXAMPLE OF A PRE-COLLECTION CHECKLIST (developed for a conservation and restoration project)			
<b>IDENTIFICATION</b>			
Family		Locality (GPS or map co-ordinates)	
Genus			
Species		Date of Assessment	
<b>POPULATION ASSESSMENT</b>			
Taxon identified and apparently similar taxa distinguished	YES / NO		
Approximate area of population	x		(m <sup>2</sup> , km <sup>2</sup> )
Approx. number of accessible individual plants	1-10	11-50	51-100    101-1000    >1000
Evidence of disturbance/damage by herbicides, fire etc.	YES / NO		

ASSESSING READINESS OF POPULATION FOR SEED COLLECTION	
Most frequently occurring phenological stage (please tick or give percentage)	
Vegetative	
Reproductive	Flowering
	Immature seeds
	Around natural dispersal
	Post dispersal
Estimated number of individual plants at natural dispersal	
<b>PHYSICAL QUALITY</b>	
Cut-test 10-20 seeds: of the sample examined, indicate the most frequently occurring (please tick or give percentage)	
Full seeds	
Empty seeds	
Infested seeds	
Immature seeds	
<b>AVAILABILITY OF SEEDS</b>	
Average number of seeds per fruit/dispersal unit	
Average number of fruits/dispersal units per individual plant	
Is it possible to collect 5,000 - 10,000 healthy seeds around natural dispersal without taking more than 20% of the available seeds?	YES / NO
<b>MONITORING</b>	
For populations NOT yet at natural dispersal, estimate suitable date to return and collect seeds	



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模块2结束（确定重点和采集前评估）  
试一下小测试？

下面进入模块3吧（种子采集）



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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

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[www.bgci.org](http://www.bgci.org)

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