

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



**BGCI**

*Plants for the Planet*

# 模块5：萌发和休眠





BGCI

Plants for the Planet

- 《全球植物保护战略》（GSPC）目标8：20%的濒危物种被纳入恢复和重建计划
- 联系就地和迁地保护
- 种子收集用于恢复活动

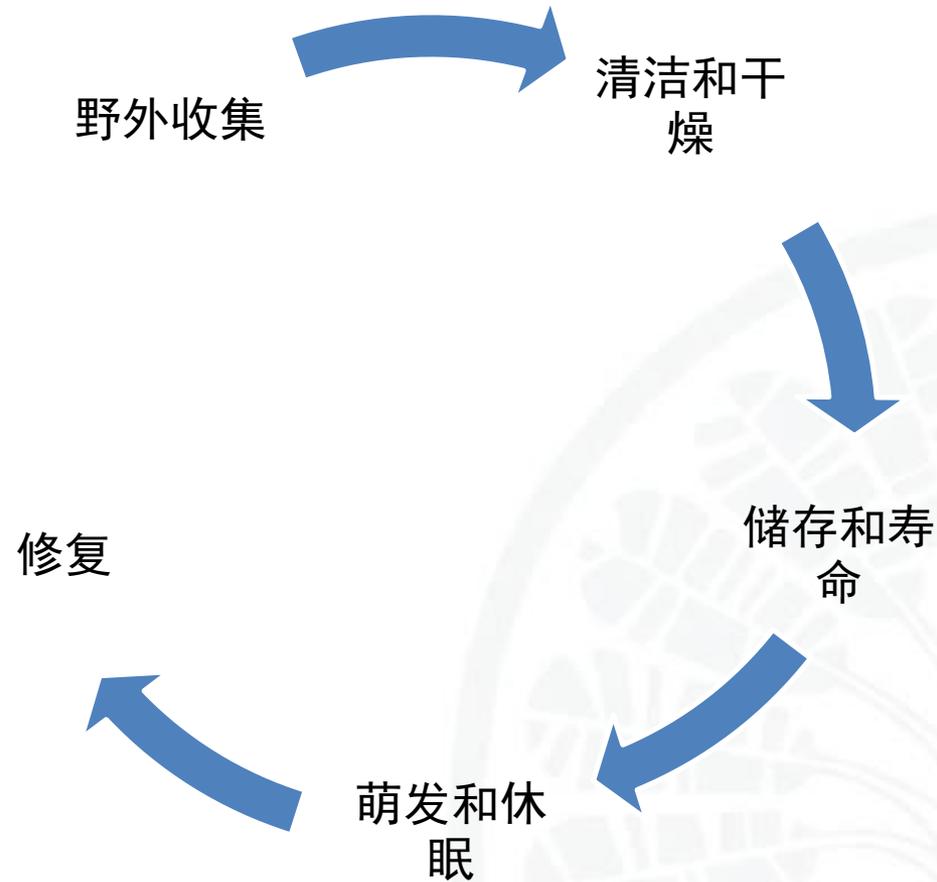


# 保护高质量的种子收集



BGCI

Plants for the Planet



# 恢复-植物园

## 中科院西双版纳热带植物园：

- 恢复热带雨林剩余树种
- 野生植物因橡胶种植园而被清除
- 利用历史记录资料来确定哪些物种消失了



# 萌发



BGCI

Plants for the Planet

- 萌发的要求是因种而异的

## 考虑

- 分类学
- 植物的生活史
- 休眠
- 生境
- 气候



# 分类学



BGCI

Plants for the Planet

Search the Seed Information Database	
APG Clade	<input type="text"/>
APG Order	<input type="text"/>
Family	<input type="text"/>
Genus	<input type="text" value="mimosa"/>
Species	<input type="text"/>
Storage Behaviour	<input type="text" value="(All)"/>
Only find records with data on:	
<input type="checkbox"/> Storage Behaviour	<input type="checkbox"/> Weight
<input type="checkbox"/> Oil Content	<input type="checkbox"/> Protein Content
<input type="checkbox"/> Dispersal	<input type="checkbox"/> Morphology
<input type="checkbox"/> Germination	<input type="checkbox"/> Salt Tolerance
<input type="button" value="Reset"/> <input type="button" value="Search"/>	

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

如果出现的信息并非关于你所感兴趣的物种，那就查询关系最近的物种

## Seed Information Database

### Search Results

79 records found.

[Taxonomy](#), [Storage Behaviour](#), [Mean 1000 Seed Weight](#), [Seed Dispersal](#), [Germination](#), [Oil Content](#), [Protein Content](#), [Morphology](#), [Salt Tolerance](#)

[Mimosa acantholoba var. eurycarpa](#) Orthodox 363.2g Germ  
[Mimosa aculeaticarpa var. biuncifera](#) Orthodox  
[Mimosa aculeaticarpa Ortega](#) Orthodox 10.1g Disp Germ 6.1% 36.9% Morph  
[Mimosa acutistipula \(M. Martens\) Benth.](#) Orthodox 13.2812g Germ  
[Mimosa adenocarpa Benth.](#) Orthodox 2.6228g Germ  
[Mimosa albida Humb. & Bonpl. ex Willd.](#) Orthodox 8.42g Germ  
[Mimosa albida Willd. var. albida](#) Orthodox 7.5564g Germ  
[Mimosa arenosa \(Willd.\) Poir.](#) 4.6608g  
[Mimosa bahamensis Benth.](#) Orthodox 20.303g Germ  
[Mimosa bimucronata \(DC.\) Kuntze](#) Orthodox  
[Mimosa biuncifera Benth.](#)  
[Mimosa blanchetii Benth.](#) Orthodox 7.1032g Germ  
[Mimosa brevispicata Britton & Rose](#) Orthodox 7.6236g Germ  
[Mimosa busseana Harms](#) 13.5980769g  
[Mimosa camporum Benth.](#) Orthodox 5.79g Germ  
[Mimosa chaetocarpa Brandegee](#) Disp  
[Mimosa debilis Humb. & Bonpl. ex Willd.](#) 3.76g  
[Mimosa delicatula Tind. & Kodala](#) Orthodox 13.6984g Germ  
[Mimosa depauperata Benth.](#) 11.577g  
[Mimosa distachya Cav.](#) Orthodox  
[Mimosa distachya Cav. var. distachya](#) Orthodox 7.4544g Germ  
[Mimosa dysocarpa Benth.](#) Orthodox 12.612g Germ

1. **90% germination**; pre-sowing treatments = seed scarified (chipped with scalpel); germination medium = 1% agar; germination conditions = 20°C, 8/16; (RBG Kew, Wakehurst Place.)
2. **85% germination**; pre-sowing treatments = seed scarified (chipped with scalpel); germination medium = 1% agar; germination conditions = 25°C, 8/16; (RBG Kew, Wakehurst Place.)
3. **92% germination**; pre-sowing treatments = seed scarified (chipped with scalpel); germination medium = 1% agar; germination conditions = 21°C, 12/12; (RBG Kew, Wakehurst Place.)

Top [Interpreting the germination data](#)

# 生境类型

水生环境



沙地



温带森林



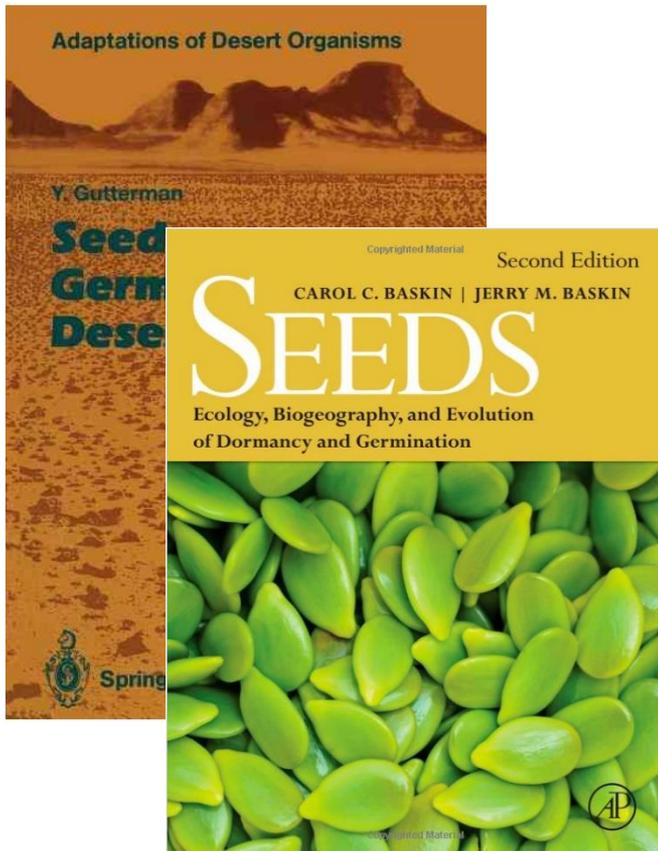
热带雨林



草原



## 书籍



## 文献期刊

**Seed Dormancy and Germination of the European *Chaerophyllum temulum* (Apiaceae), a**

**M Seed dormancy and germination in three *Crocus* ser. *Verni* species (Iridaceae): implications for evolution of dormancy within the genus**

A. Carta<sup>1,\*</sup>, R. Probert<sup>2</sup>, M. Moretti<sup>1</sup>, L. Peruzzi<sup>1</sup> and G. Bedini<sup>1</sup>

**Seed dormancy and germination of the three tropical medicinal species *Gomphandra luzoniensis* (Stemonuraceae), *Nothapodytes nimmoniana* (Icacinaceae) and *Goniothalamus amuyon* (Annonaceae)**

Seed dormancy and germination traits of an endangered aquatic plant species, *Euryale ferox* Salisb. (Nymphaeaceae)

**Growing Native Seeds for Restoration: Seed Dormancy and Germination of *Sidalcea malviflora* ssp. *virgata* (Malvaceae)**

Efecto de diferentes métodos de escarificación sobre la germinación de las semillas de *Cenchrus ciliaris* cv. *Biloela*

B Bilbao, C Matías - Pastos y Forrajes, 2014 - payfo.ihatuey.cu

Resumen En un diseño de bloques al azar con 8 réplicas se estudió el efecto de diferentes tratamientos sobre la germinación de las semillas de *Cenchrus ciliaris* cv. *Biloela*. Los tratamientos fueron: SO 4 H 2 (24 N) durante 8, 12, 16, 20 y 30 minutos; NO 3 K (0, 2%) ...

Cited by 23 Related articles All 3 versions Cite Save More

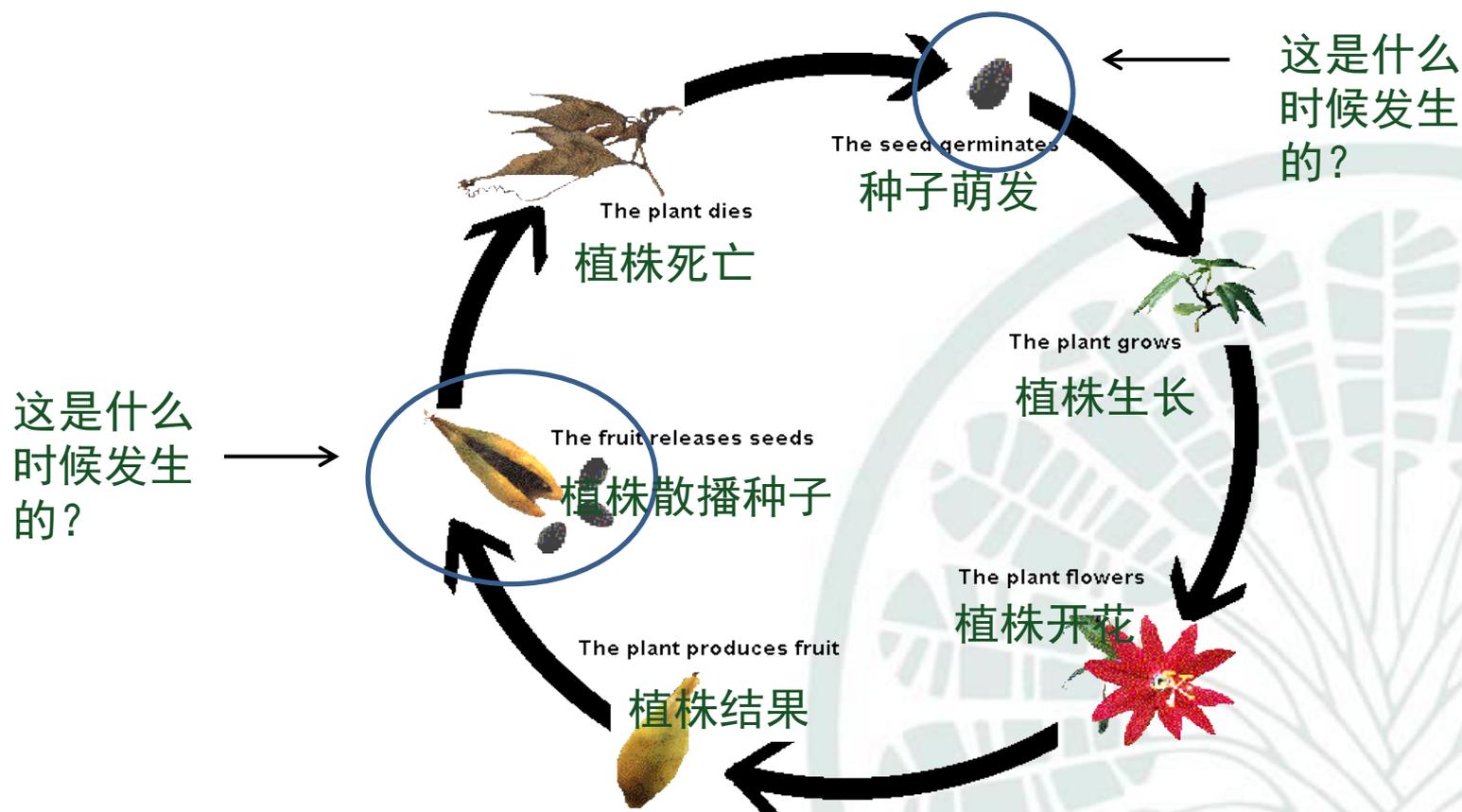
# 生活史



BGCI

Plants for the Planet

- 在自然生境中的生活史是怎样的呢？



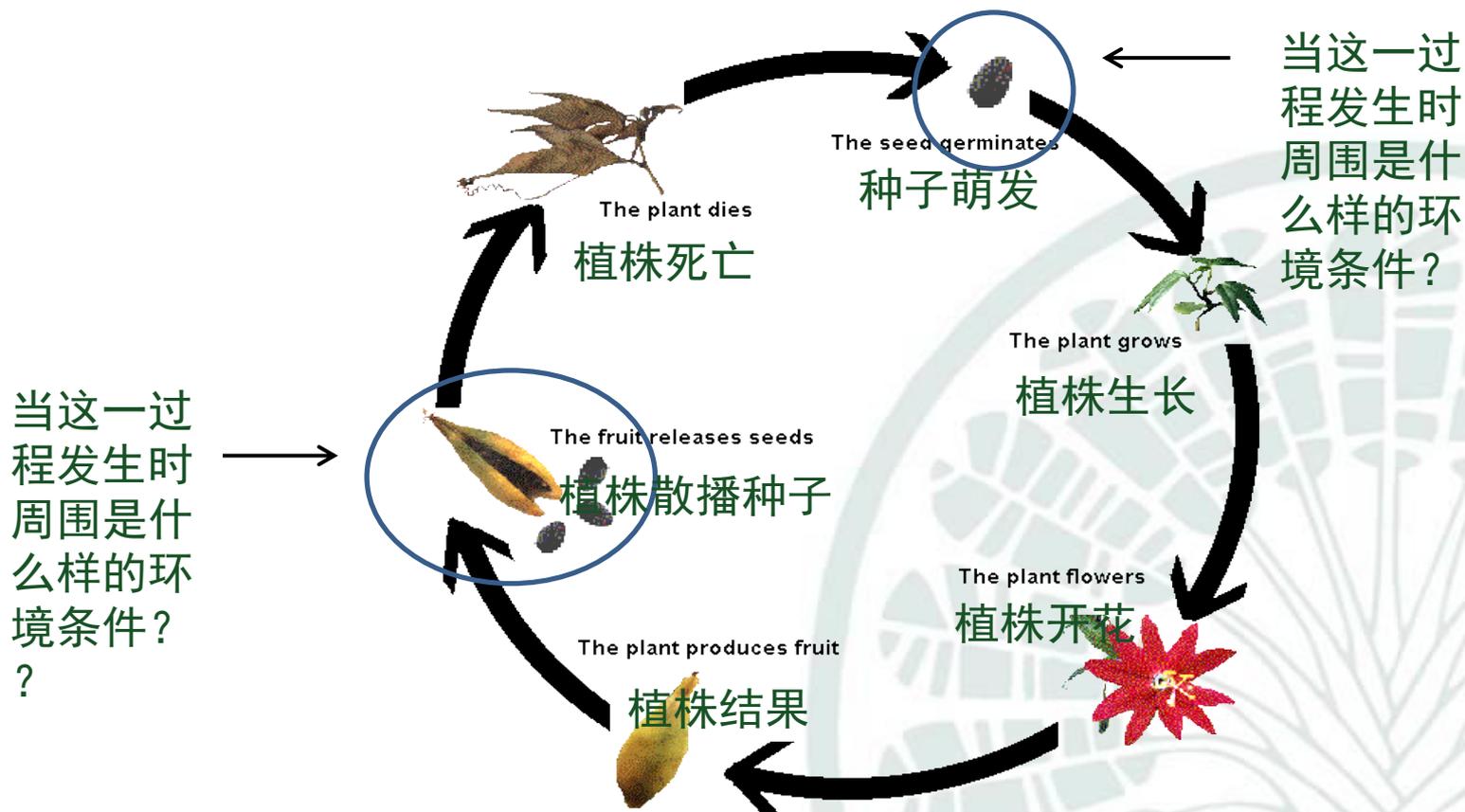
# 生活史



BGCI

Plants for the Planet

- 在自然生境中的生活史是怎样的呢？

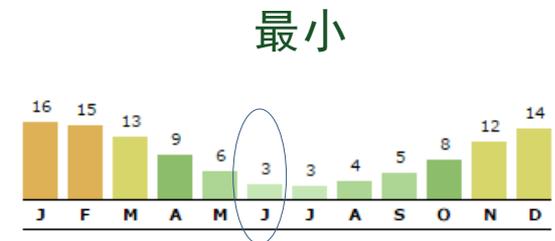
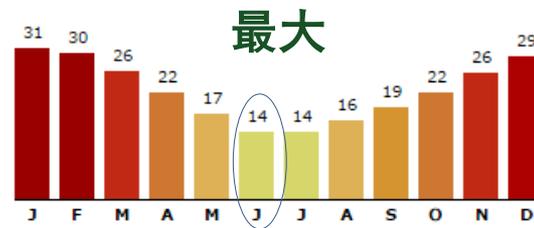


# 气候

## 种子的传播



Accession	Family	Species	Collector	Collector N	Collection date	Country	Latitude	Longitude
1	Aristolochiaceae	Aristolochia albertiana	Danmeri, F.	CBG-102	2002-04-12	Paraguay	25.234	57.667
2	Aristolochiaceae	Aristolochia burkartii	Milne, R.	JBCT-16	2007-05-02	Argentina	34.008	58.386
3	Aristolochiaceae	Aristolochia schulzii	Bennison, C.	RBGE-3042	2001-05-13	China	35.565	103.787
4	Aspleniaceae	Asplenium lilloanum	Morrissey, B.	KHD-134	2012-07-13	Germany	52.512	13.382





# 休眠



BGCI

Plants for the Planet

- 植物经过进化，可以推迟萌发，直到适宜其生长的环境出现才开始发芽



# 外源休眠

## 物理性休眠



## 野外环境中打破休眠

← 坚硬的种皮  
大火产生的高温打破  
坚硬的种皮

← 动物的消化道打破植  
物的物理性休眠

## 实验室中打破休眠

刺开种皮，让  
种子吸收水分

使用硫酸来打破  
休眠



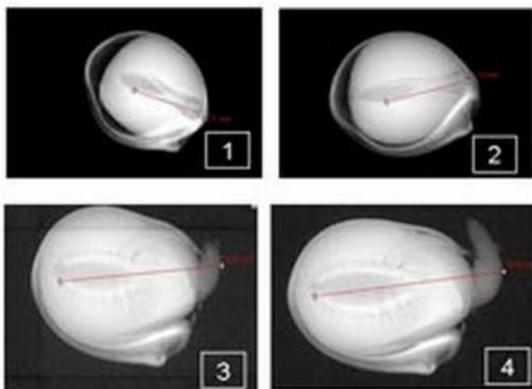


BGCI

Plants for the Planet

# 內源休眠

## 形态休眠



野外打破休眠

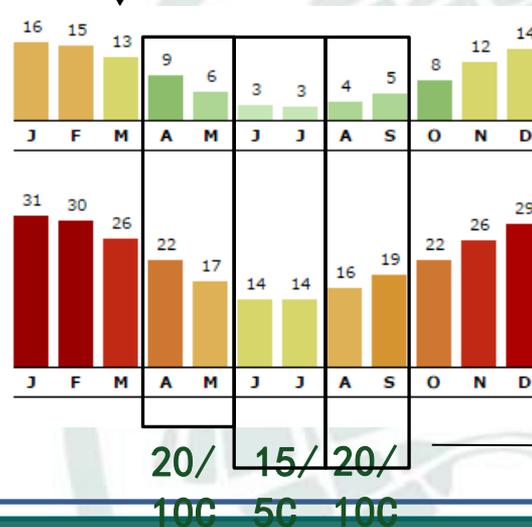
实验室中打破休眠

← 未充分发育的胚芽  
需要在萌发前生长

冷或热的分层

冷或热的分层—伴随着实验的进行

种子的传播

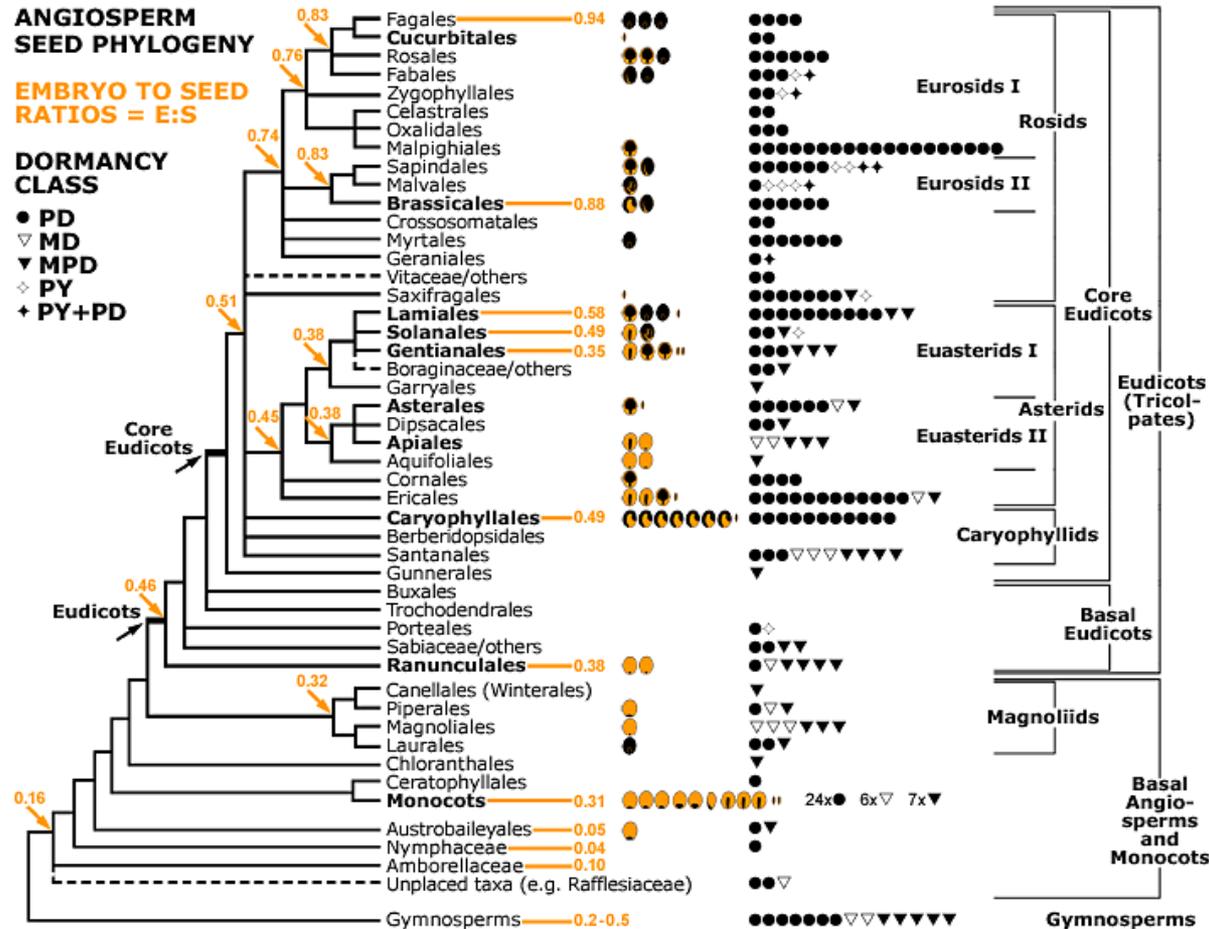


# 休眠 - 植物分级



BGCI

Plants for the Planet



Finch-Savage and Leubner-Metzger (2006) - Seed dormancy and the control of germination  
Tansley review, New Phytologist 171, © Blackwell Science, <http://www.newphytologist.org>

# 在实验室和野外的萌发



BGCI

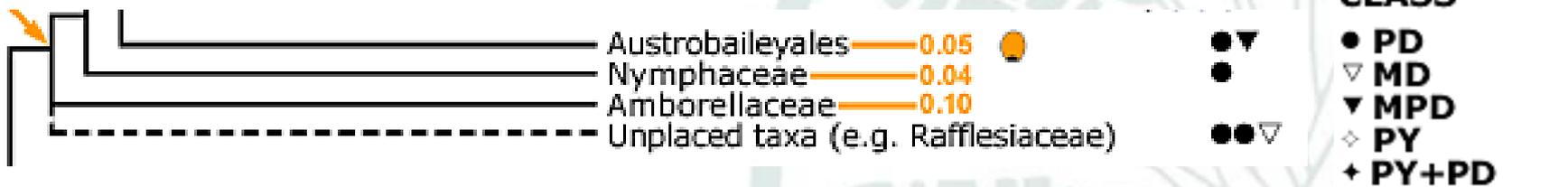
Plants for the Planet

分类学- 睡莲 *Nymphaeaceae caerulea*

生境- 水生环境。 在水中萌发

气候 - 分布 。 非洲东部尼罗河温暖的水域中

休眠 - 物理性休眠 打破休眠需要划开种皮



# 萌发-迁地



BGCI

Plants for the Planet

物理性休眠-划开种皮



让水分进入，而后开始萌发



在水中发生萌发





**BGCI**

*Plants for the Planet*

## 模块5 萌发和休眠结束

进入模块6 数据管理





# BGCI

*Plants for the Planet*

---

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

 @bgci