

***Magnolia delavayi***

**Section Gwillimia**

SE Asia (Yunnan, CHINA)

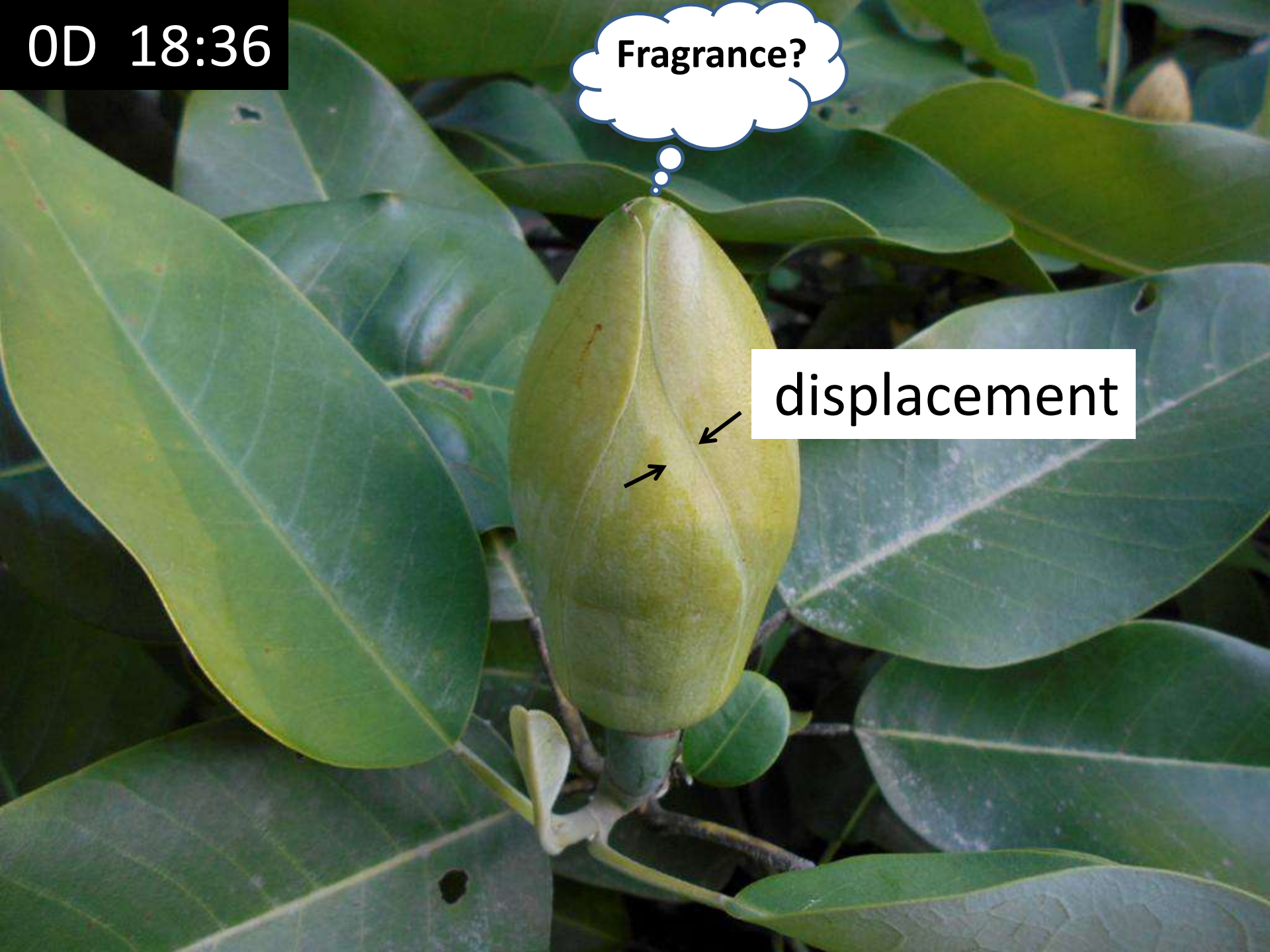
0D 18:36



0D 18:36

Fragrance?

displacement



0D 19:42

1 hour later . . .



0D 19:44

Begin ♀



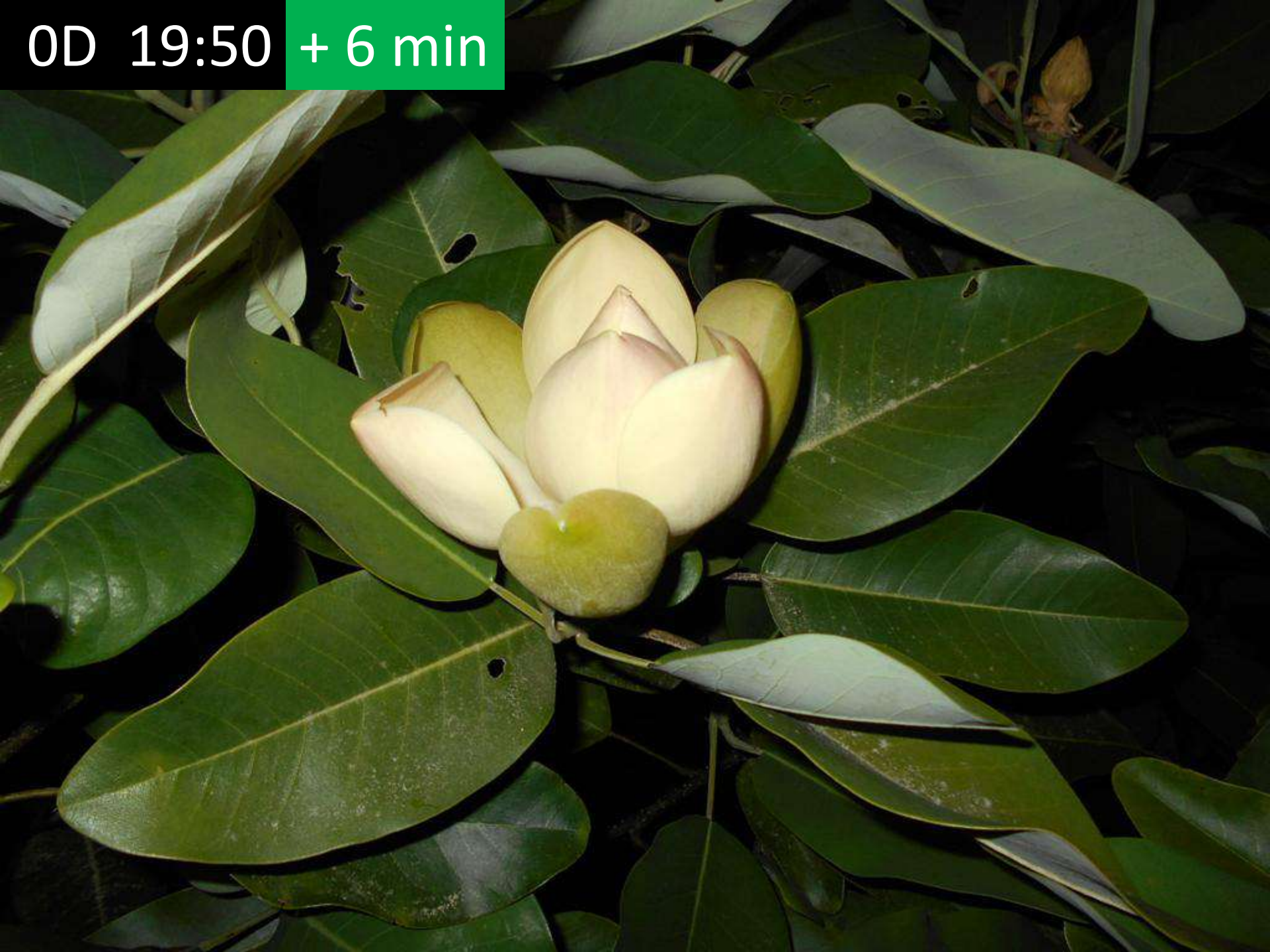
0D 19:46 + 2 min



0D 19:47 + 3 min



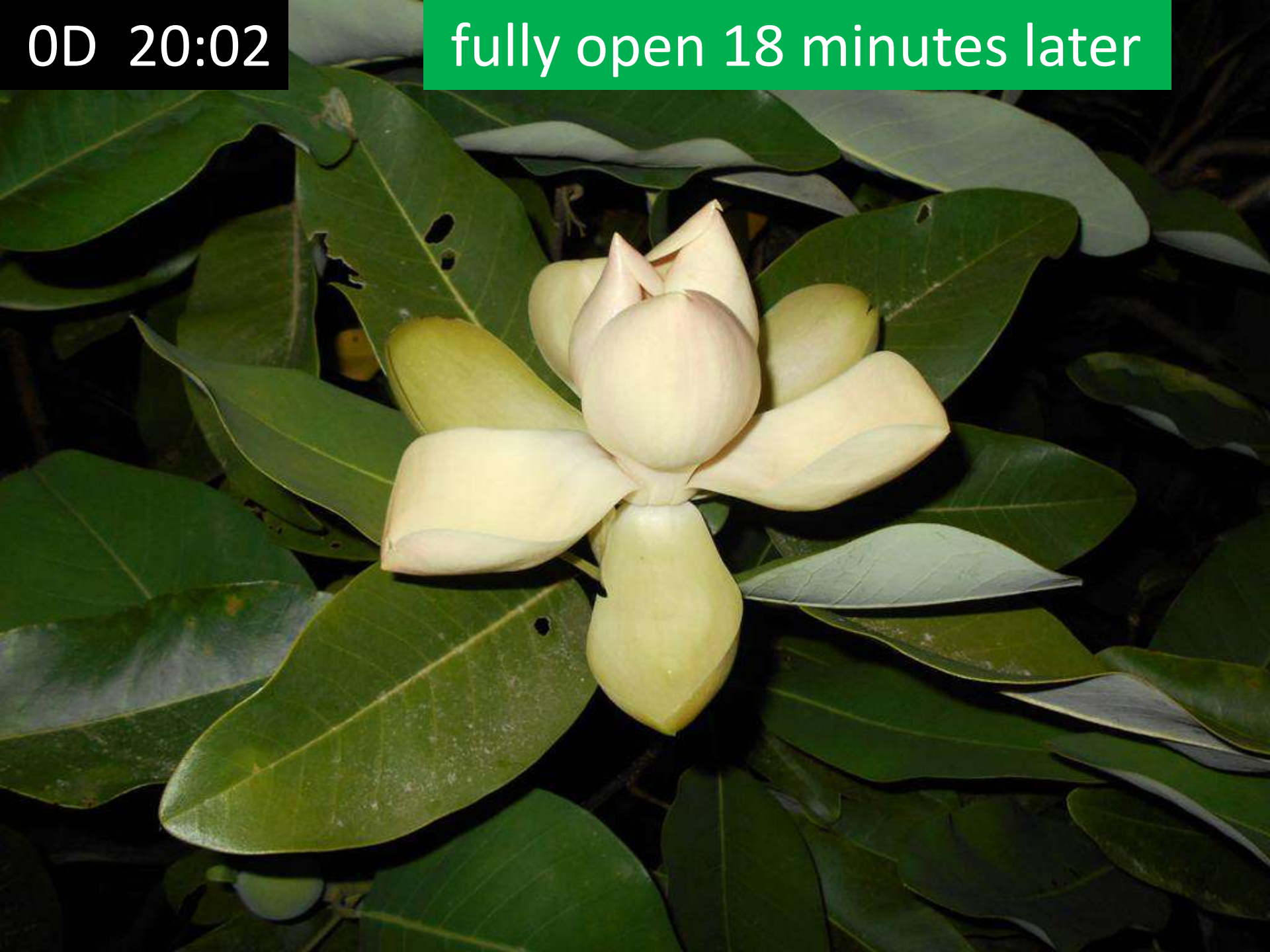
0D 19:50 + 6 min





0D 20:02

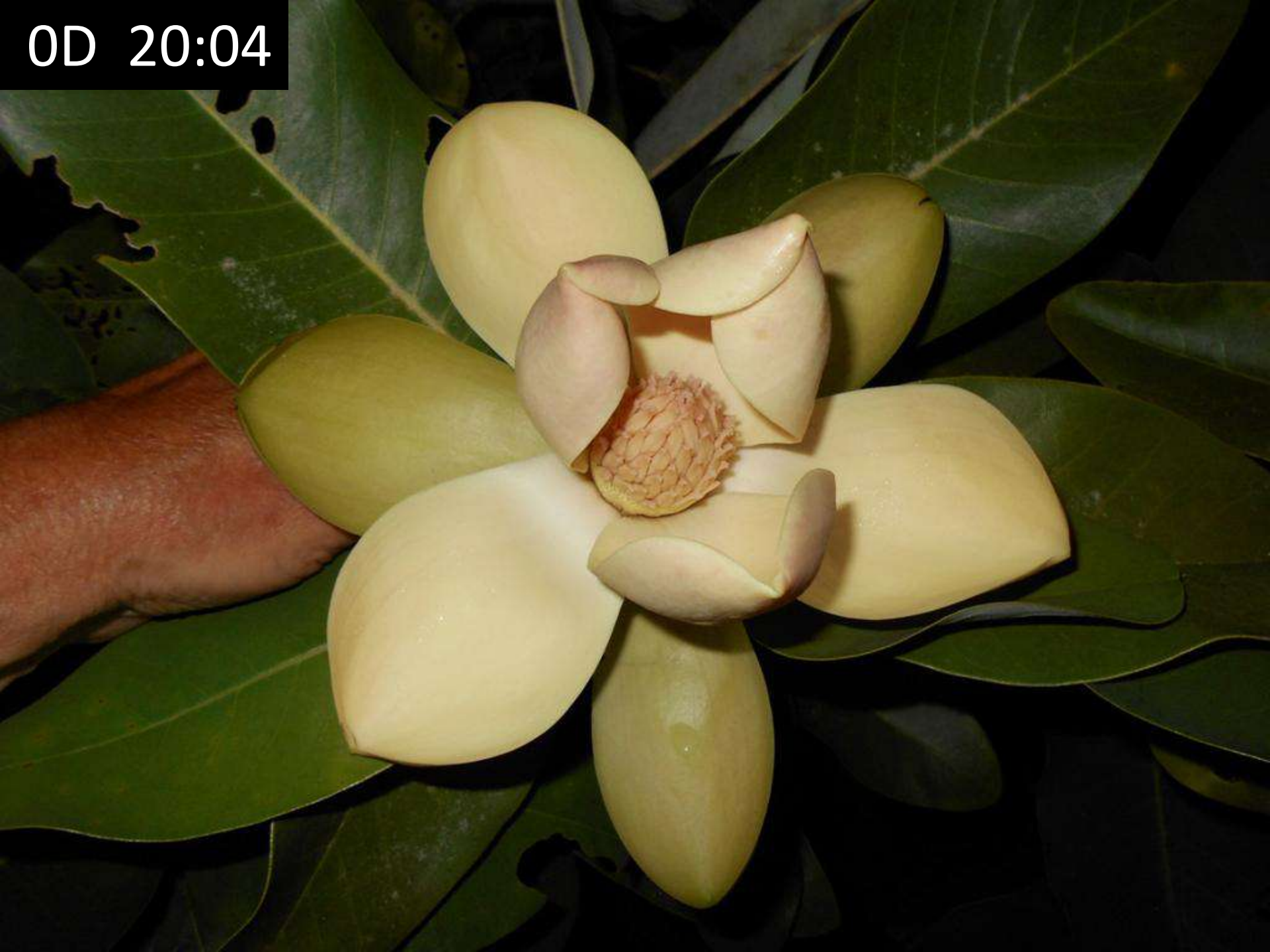
fully open 18 minutes later



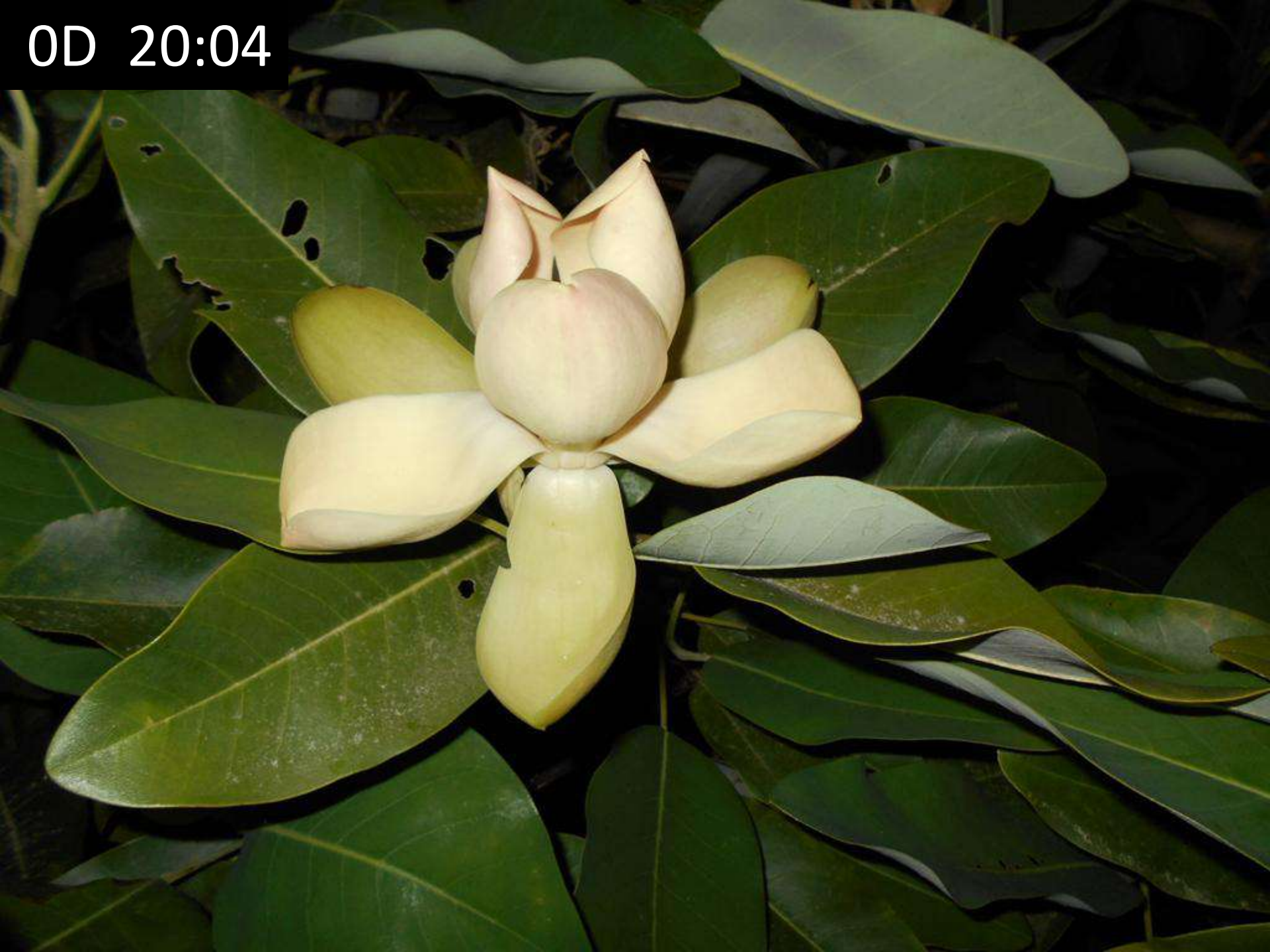
0D 20:03



0D 20:04



0D 20:04



0D 22:28

2.5 hours later . . .

. . . Begins to close



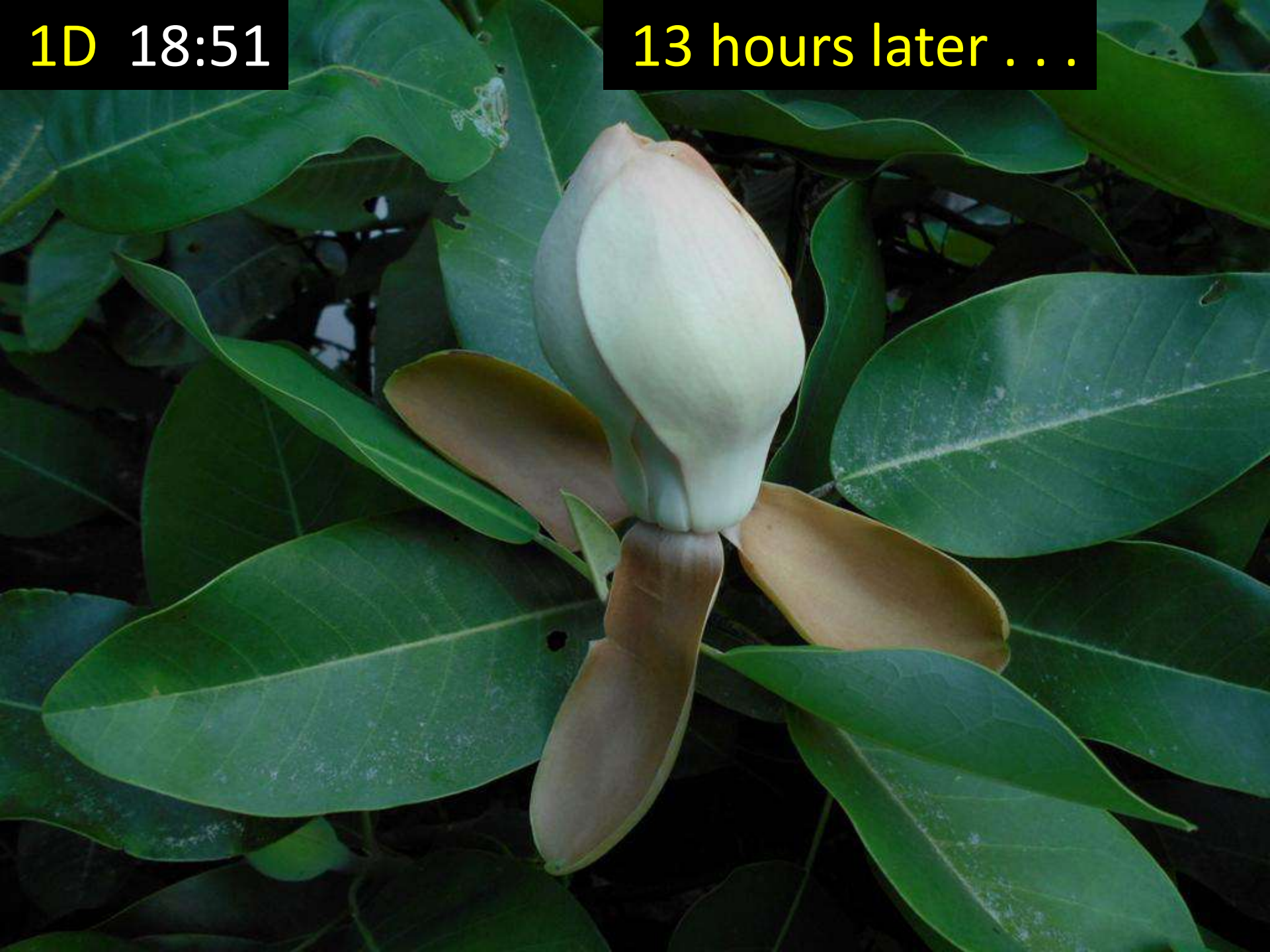
1D 6:03

... still inter-phase



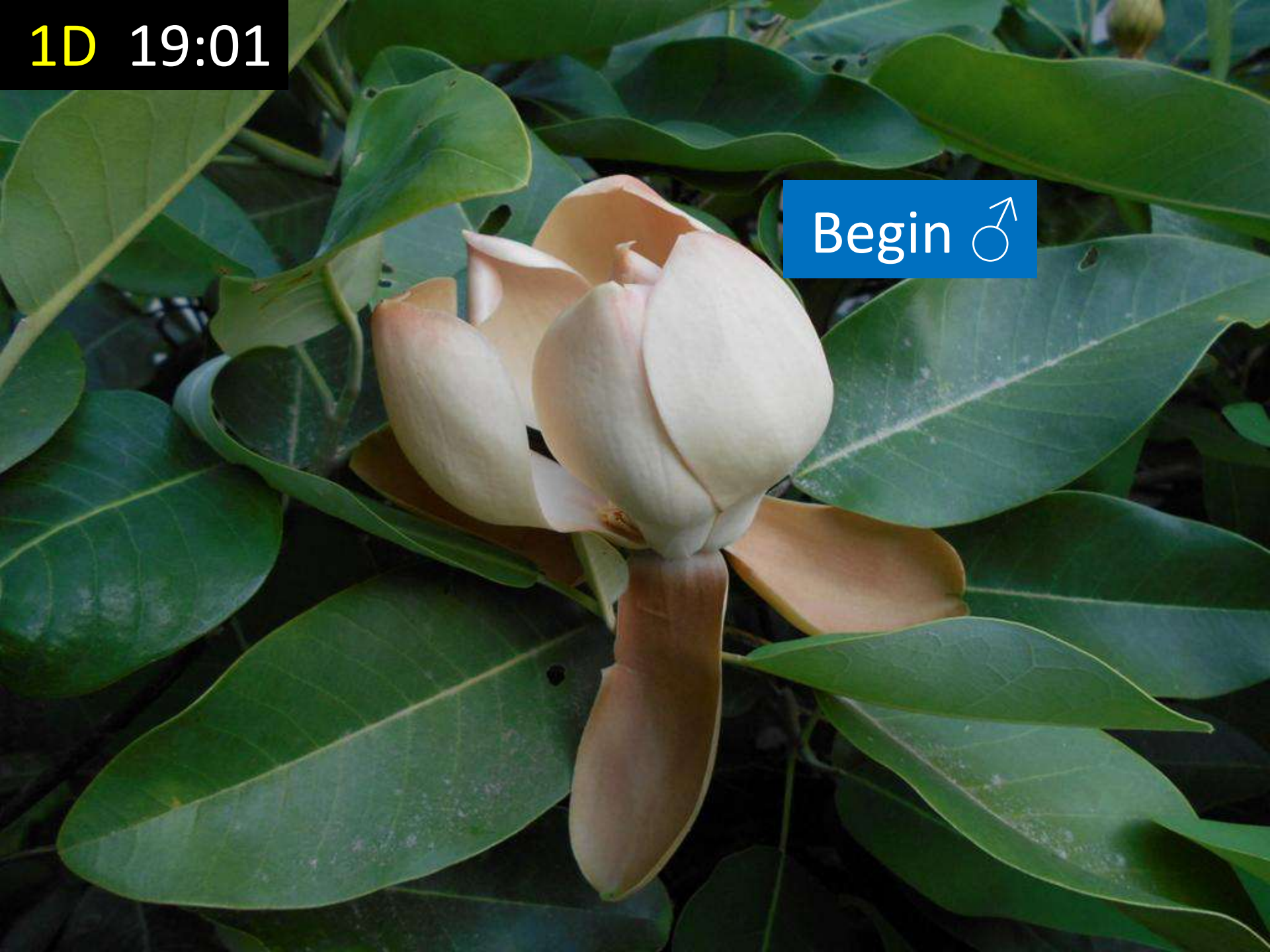
1D 18:51

13 hours later . . .



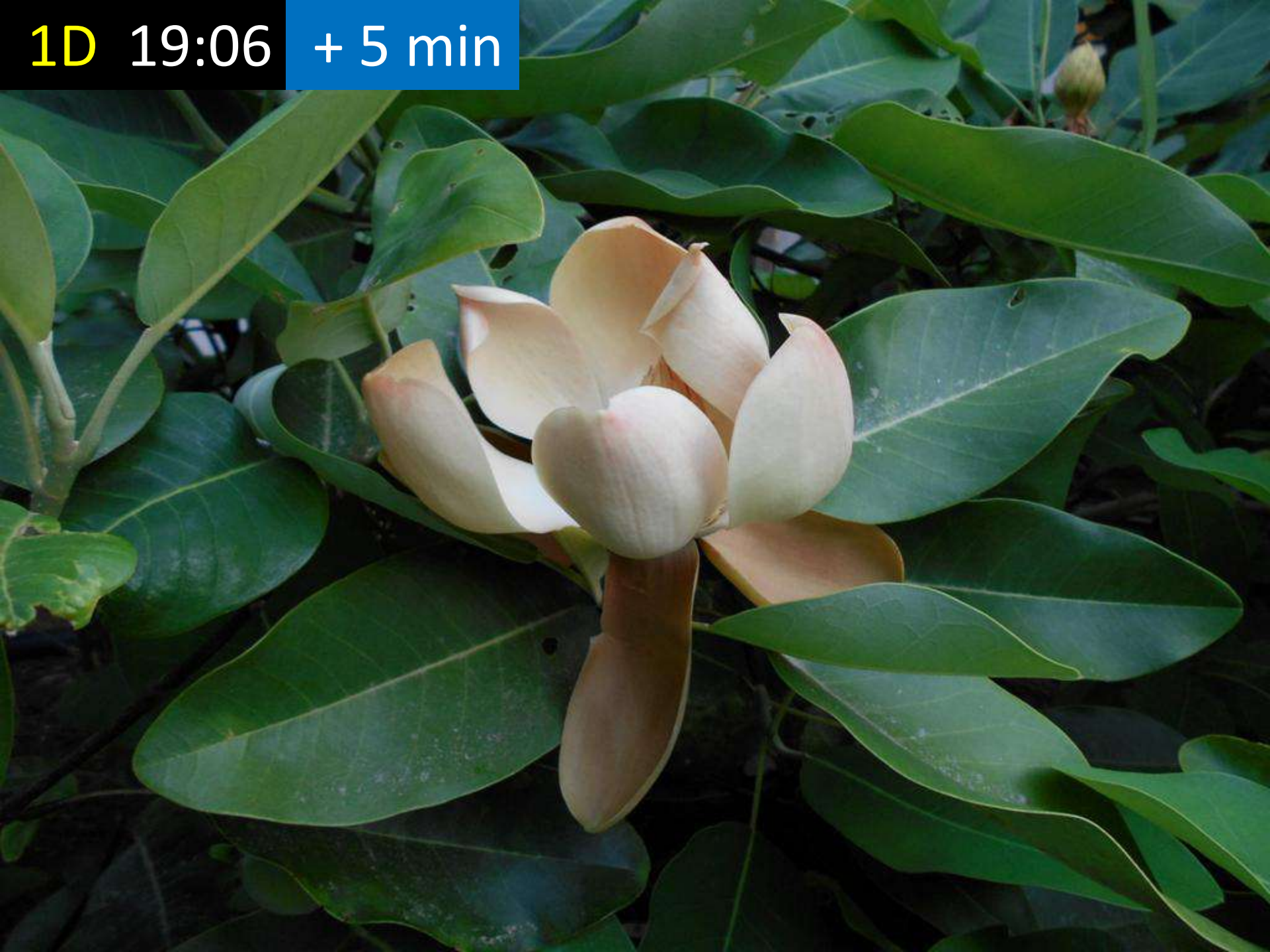
1D 19:01

Begin ♂





1D 19:06 + 5 min

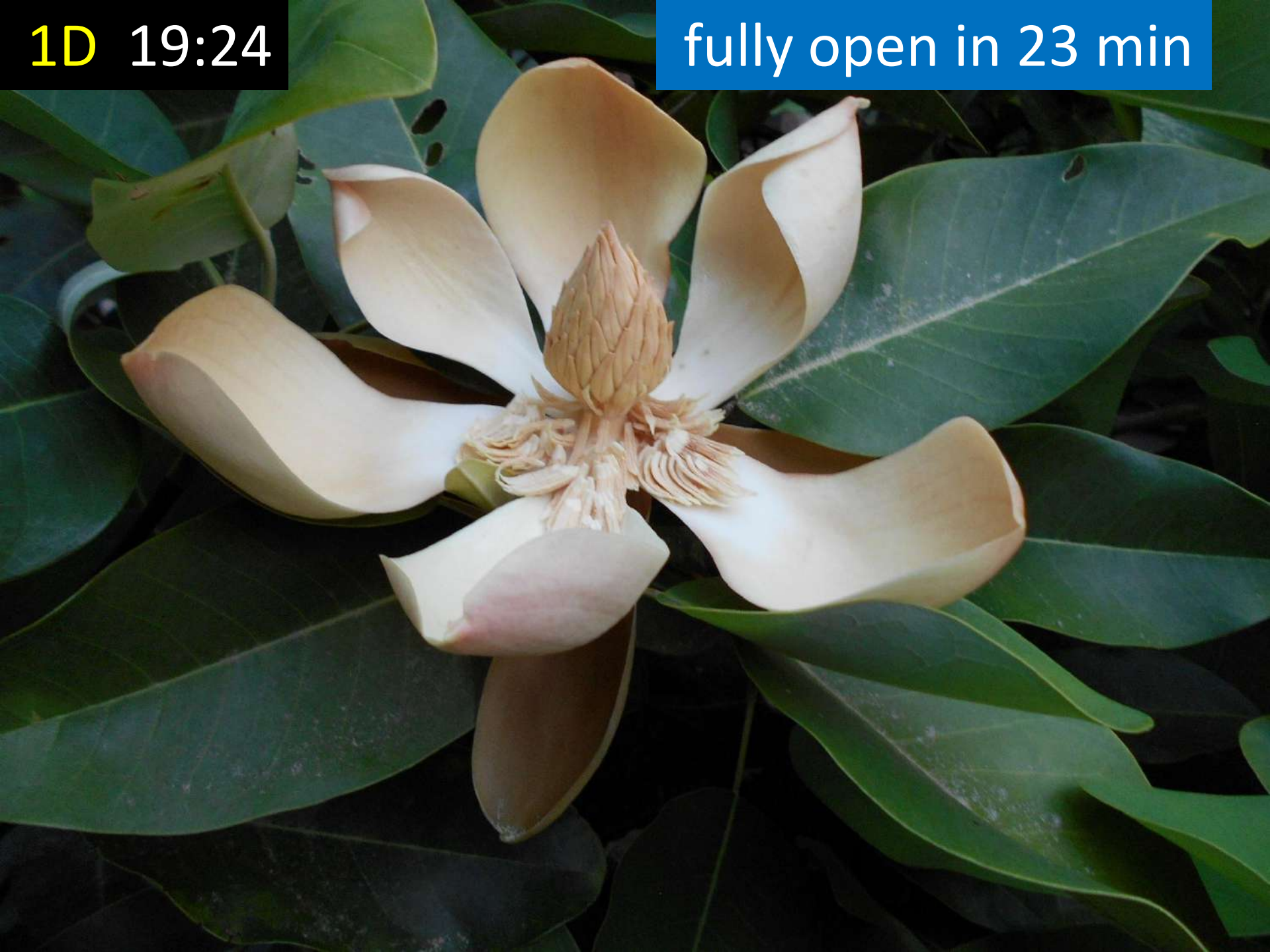


1D 19.10 + 9 min



1D 19:24

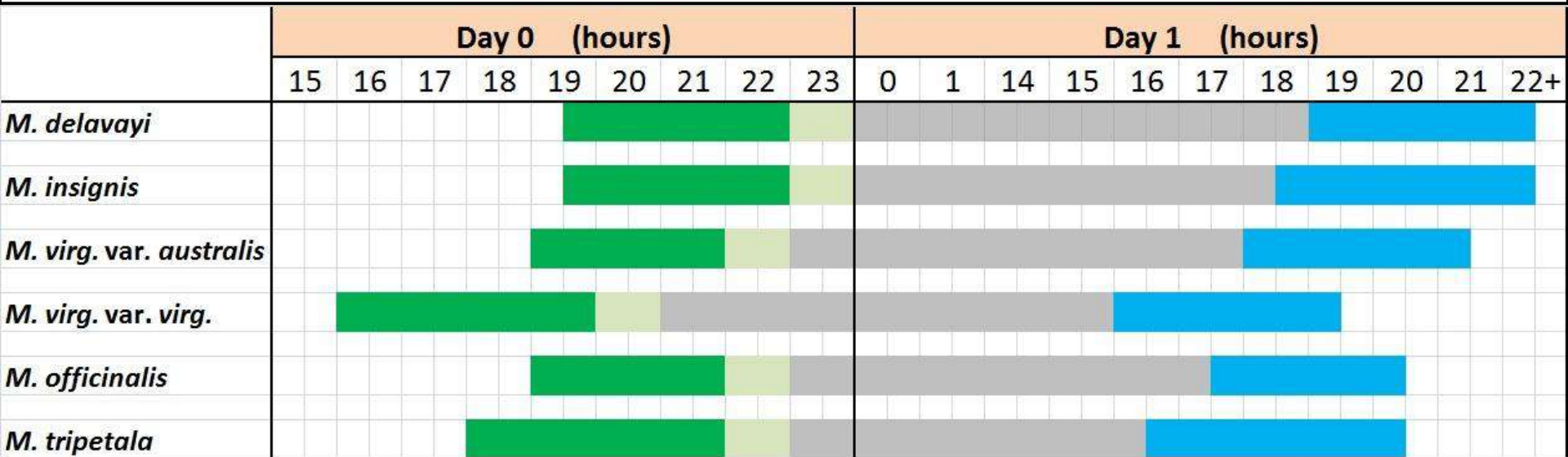
fully open in 23 min



Summary:

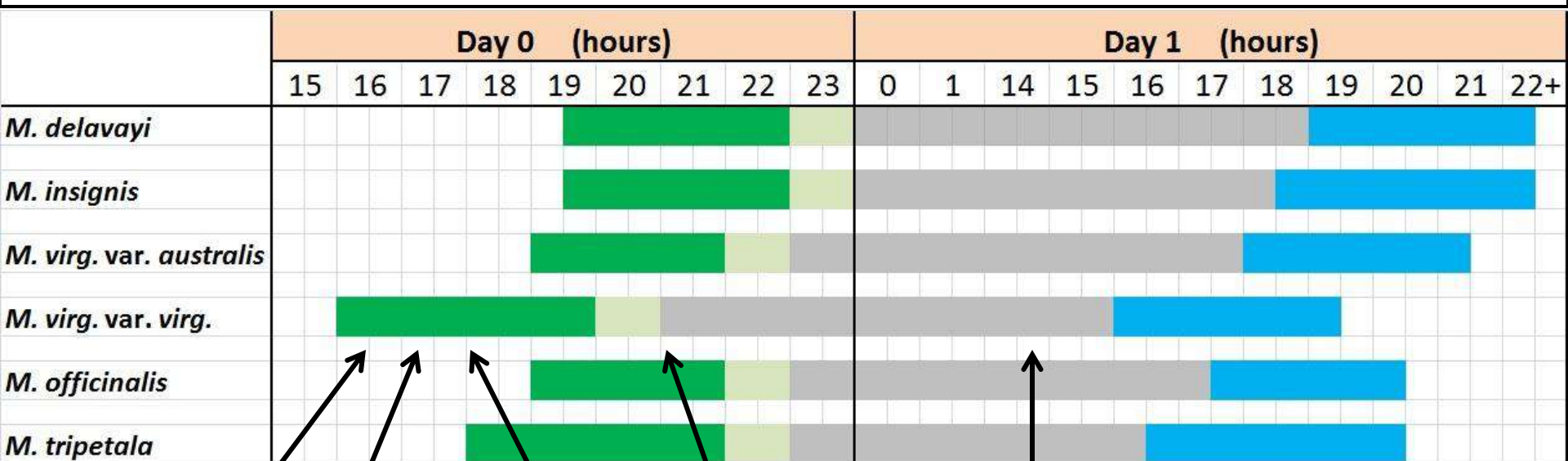
# Evening opening model

(6 individuals, 5 spp., from 4 Sections)





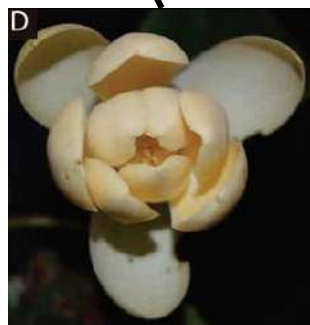
# Compare: *Magnolia vargasiana* (photos Antonio Vázquez) (Subsection *Talauma*)



0D 16:49



0D 17:16



0D 18:00-19:58



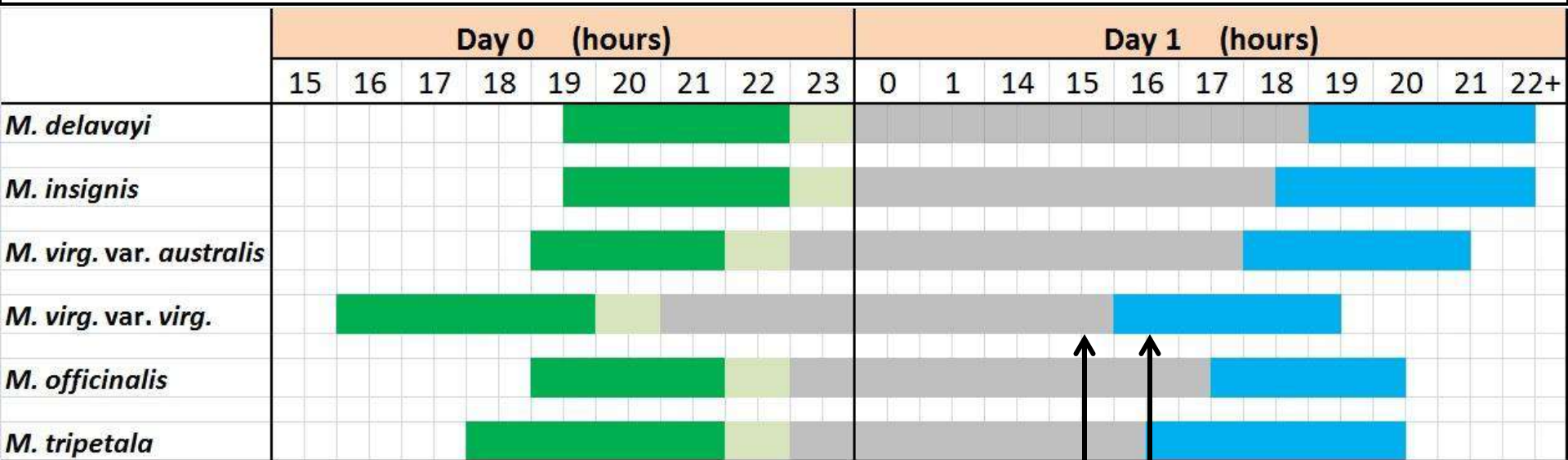
0D 21:04



1D 14:25

# Compare: *Magnolia chiguila* (photos Álvaro Pérez)

## (Subsection *Chocotalauma*)



1D 15:32



1D 16:29

# Compare: *Magnolia chiguila* (photos Álvaro Pérez) (Subsection *Chocotalauma*)

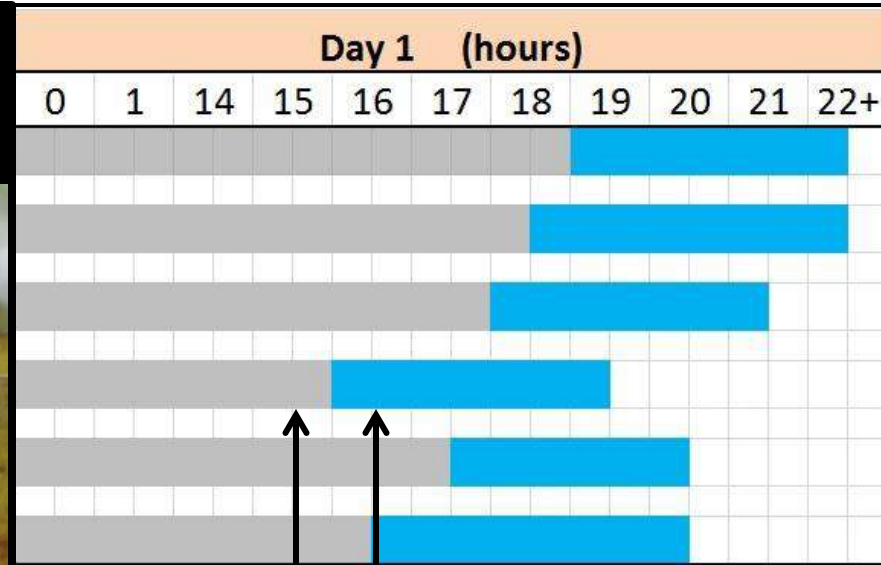


photo Emily Veltjen (Oct 2018)

Possibly allied with  
*M. narinensis* ?



1D 15:32



1D 16:29





***Magnolia grandiflora***

***Section Magnolia***

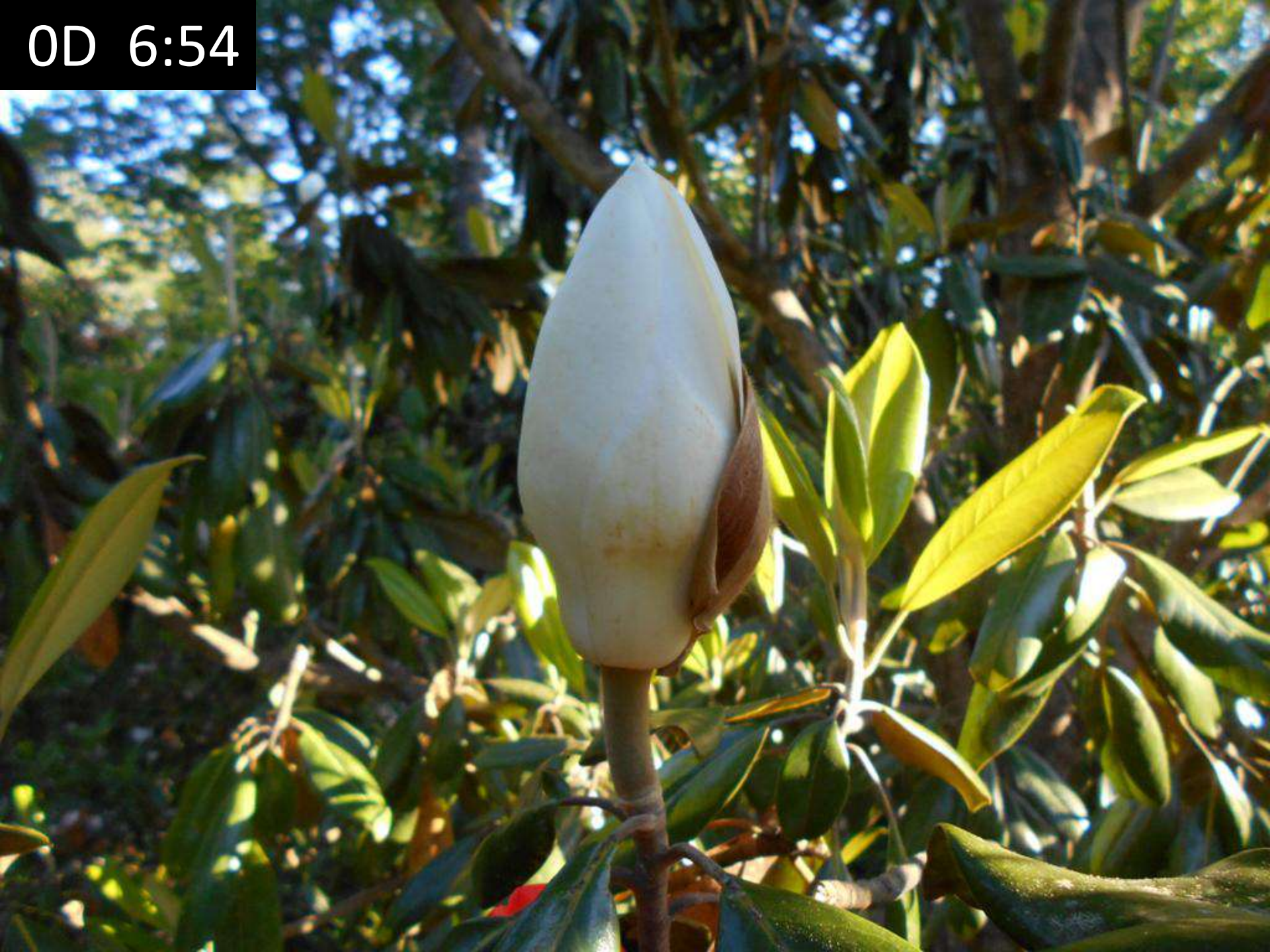
SE North America

-1D 17:20

bud shedding bract



0D 6:54



0D 7:58

Begin ♀



0D 8:17 +19 min



0D 8:42



0D 8:43





0D 13:04

Tepals begin to close . . .



0D 14:19



0D 17:14



0D 17:50



0D 22:29



1D 6:04

next morning. . .

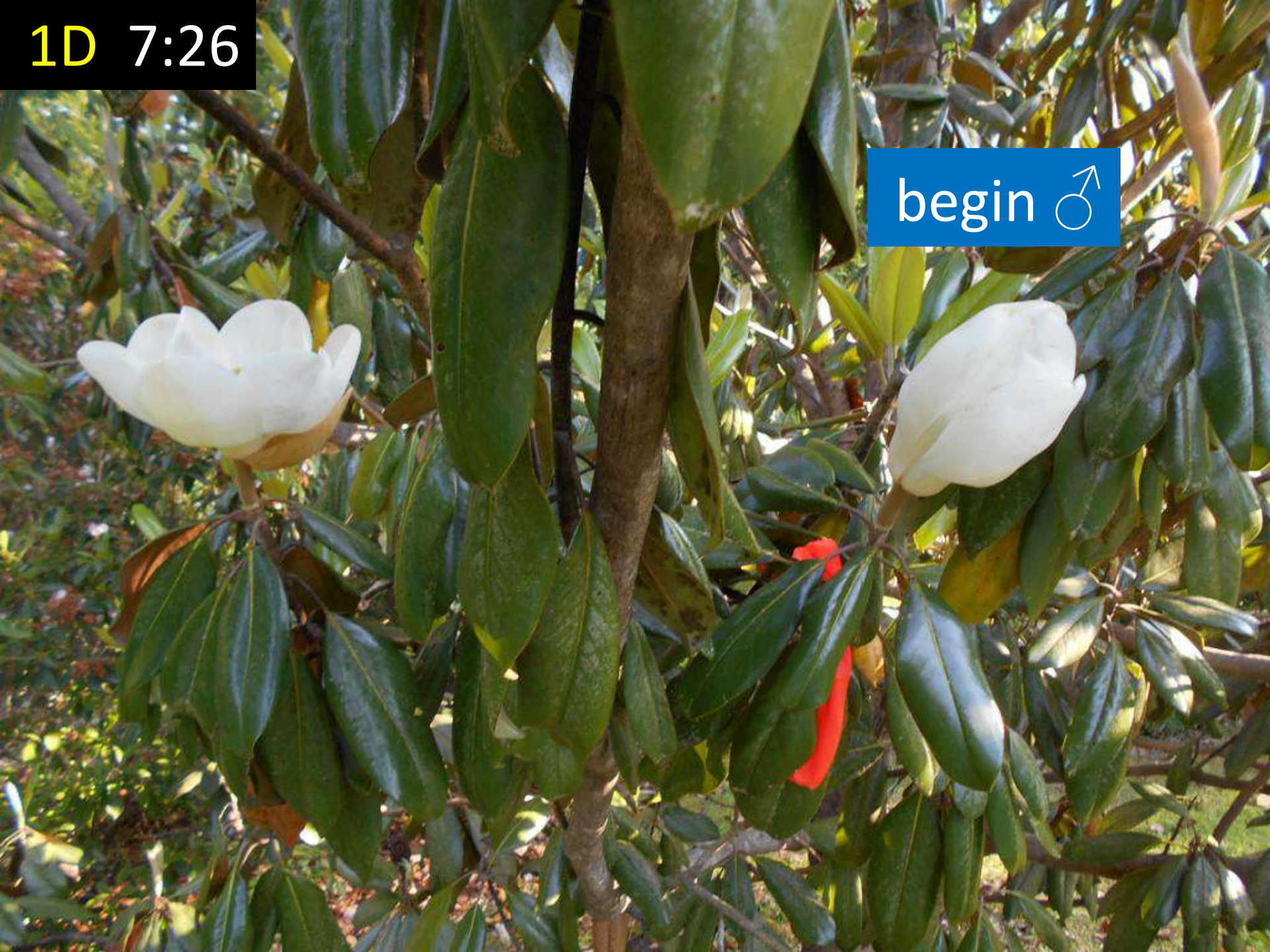


1D 6:51



1D 7:26

begin ♂



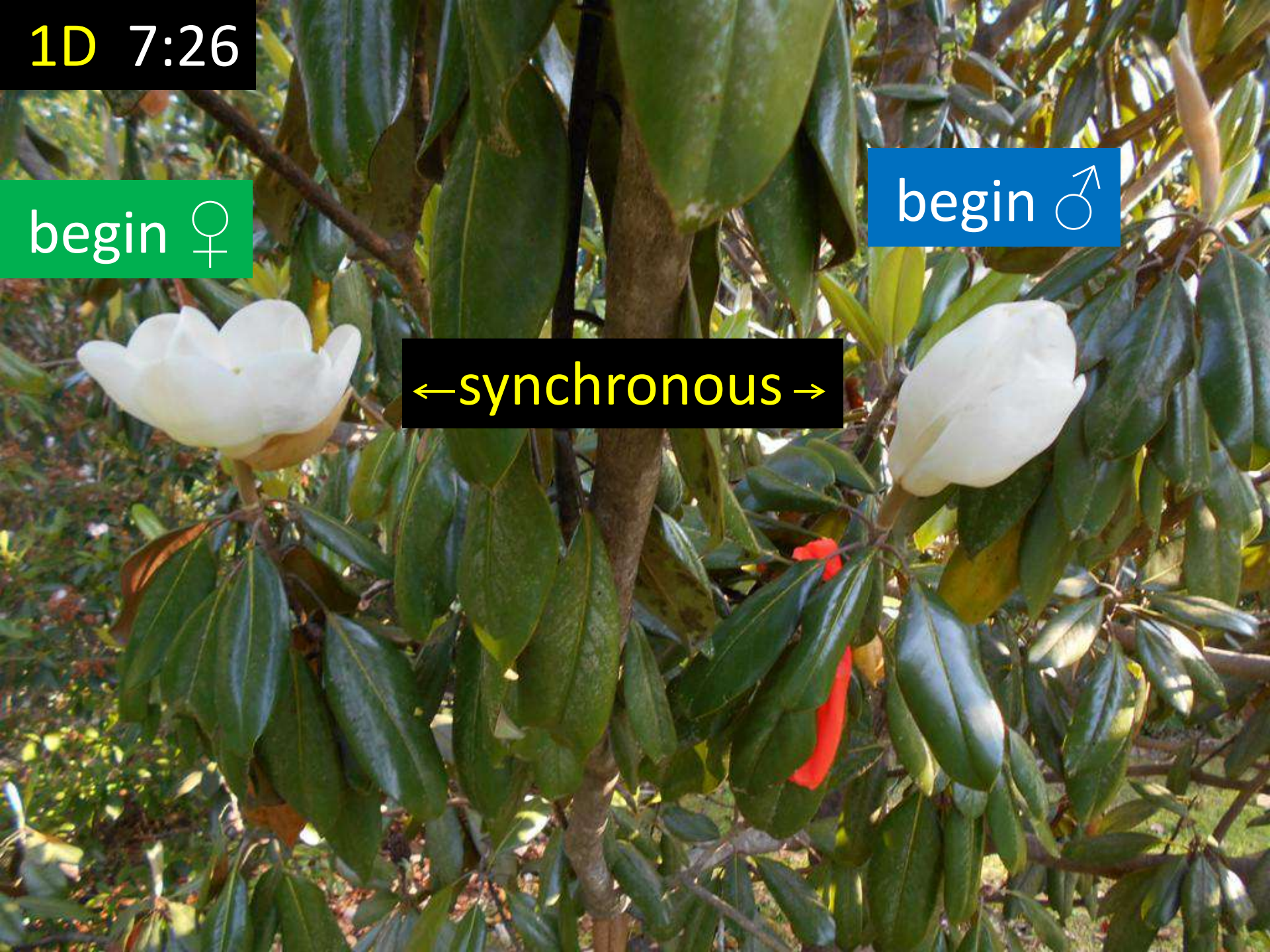


1D 7:26

begin ♀

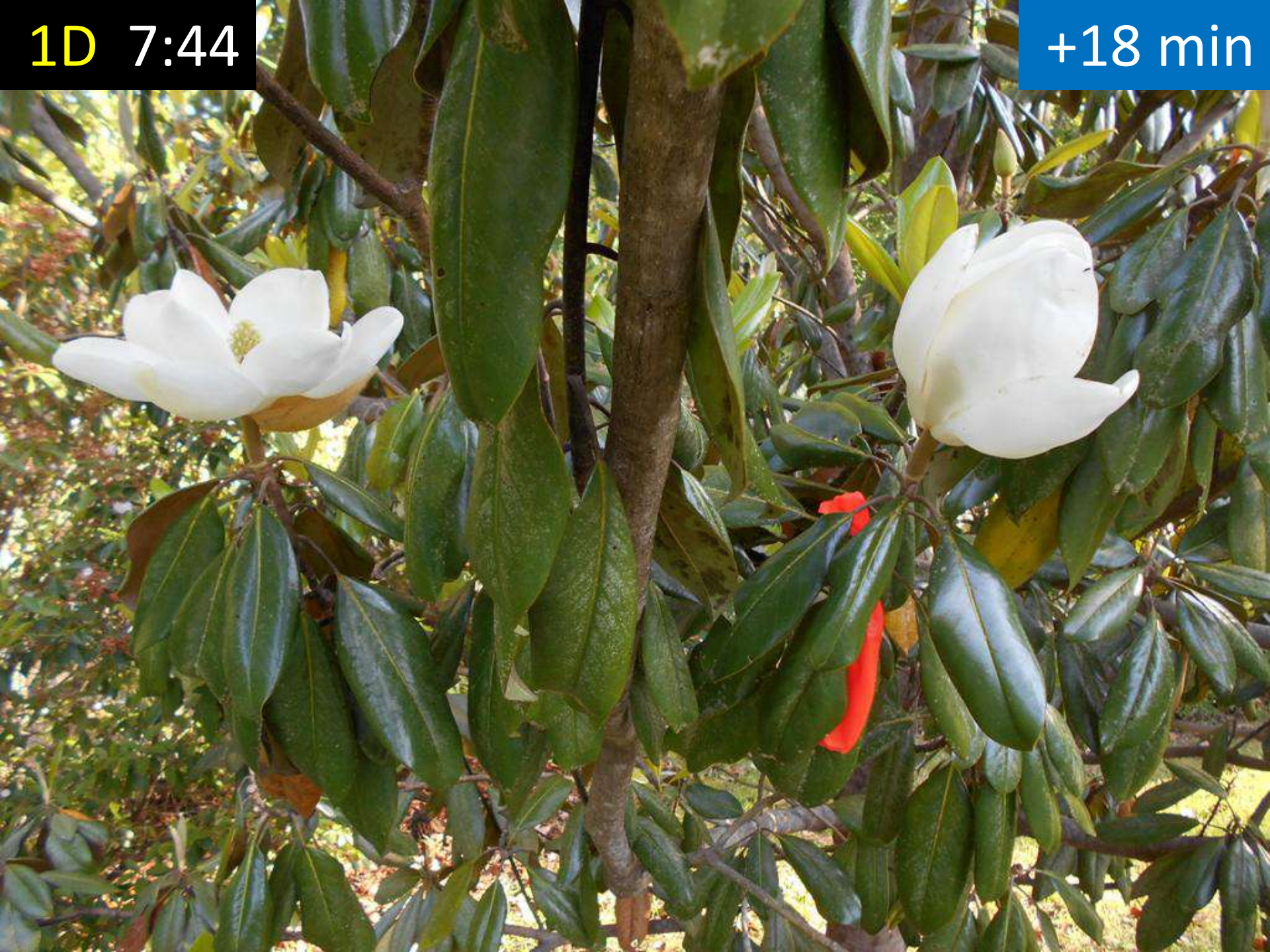
begin ♂

←synchronous→



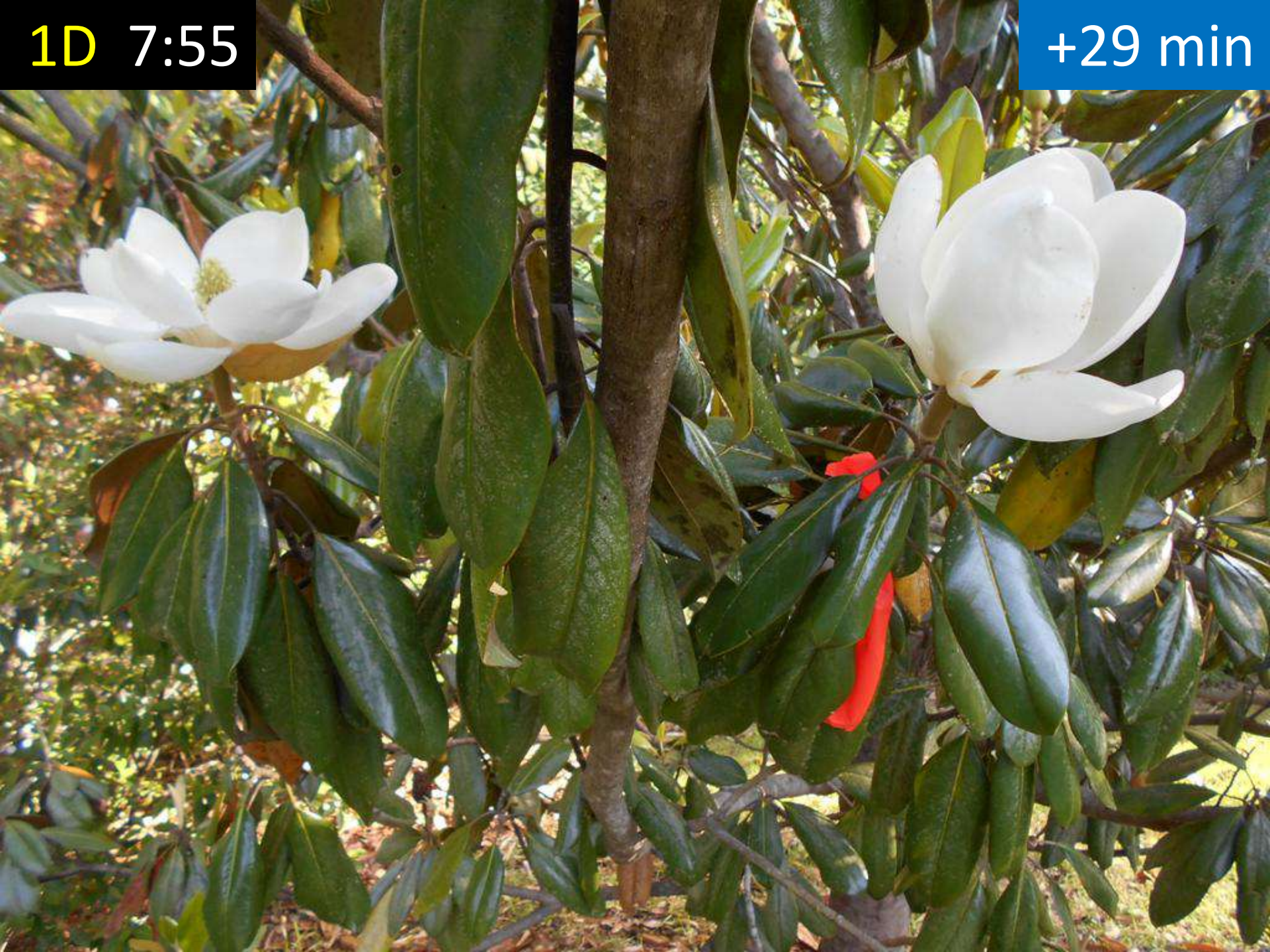
1D 7:44

+18 min



1D 7:55

+29 min



1D 8:25



1D 8:25



1D 8:26

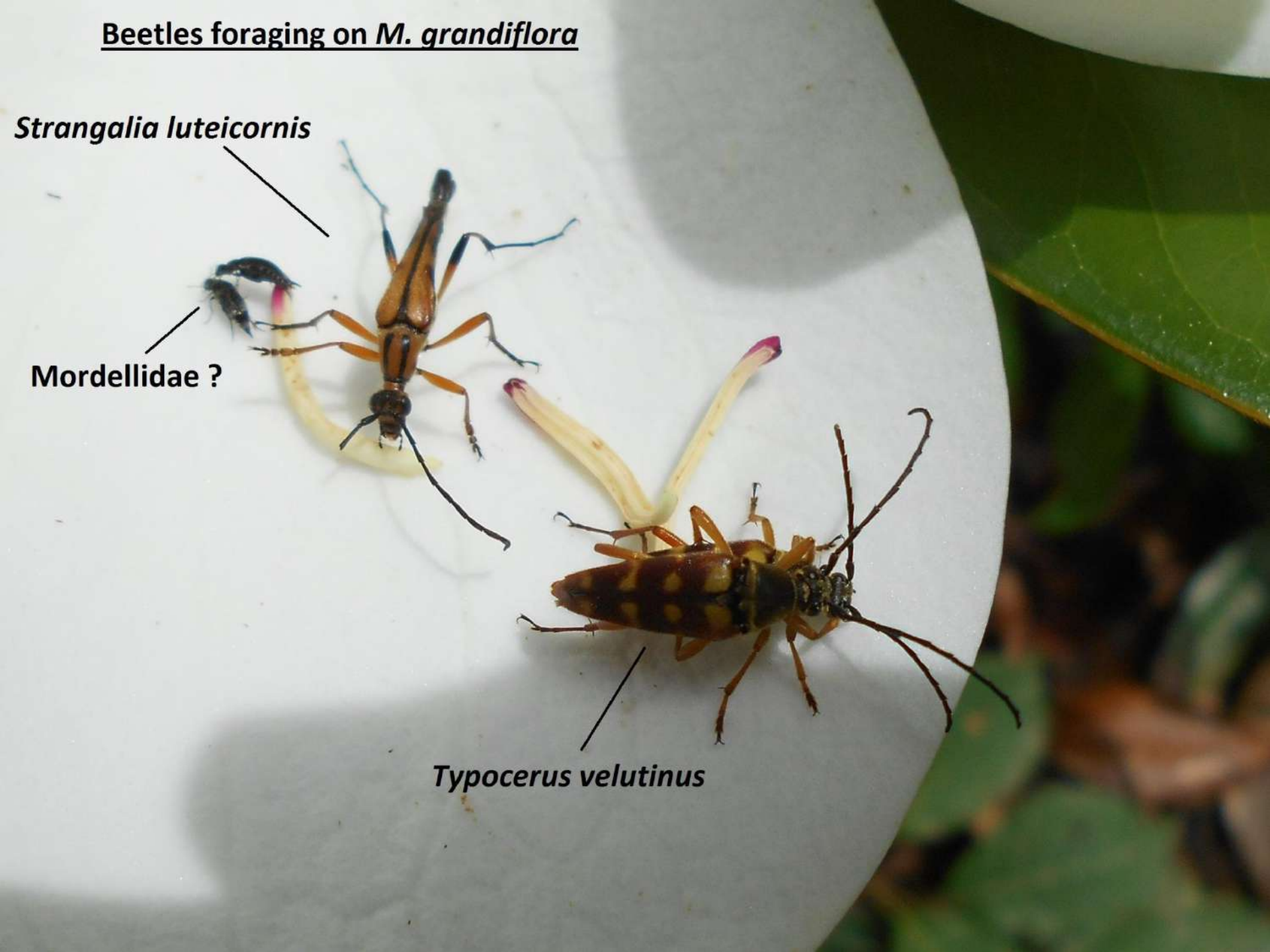


Beetles foraging on *M. grandiflora*

*Strangalia luteicornis*

Mordellidae ?

*Typocerus velutinus*



***Magnolia tamaulipana***

**Section Magnolia**

North America (NE Mexico)



0D 9:14

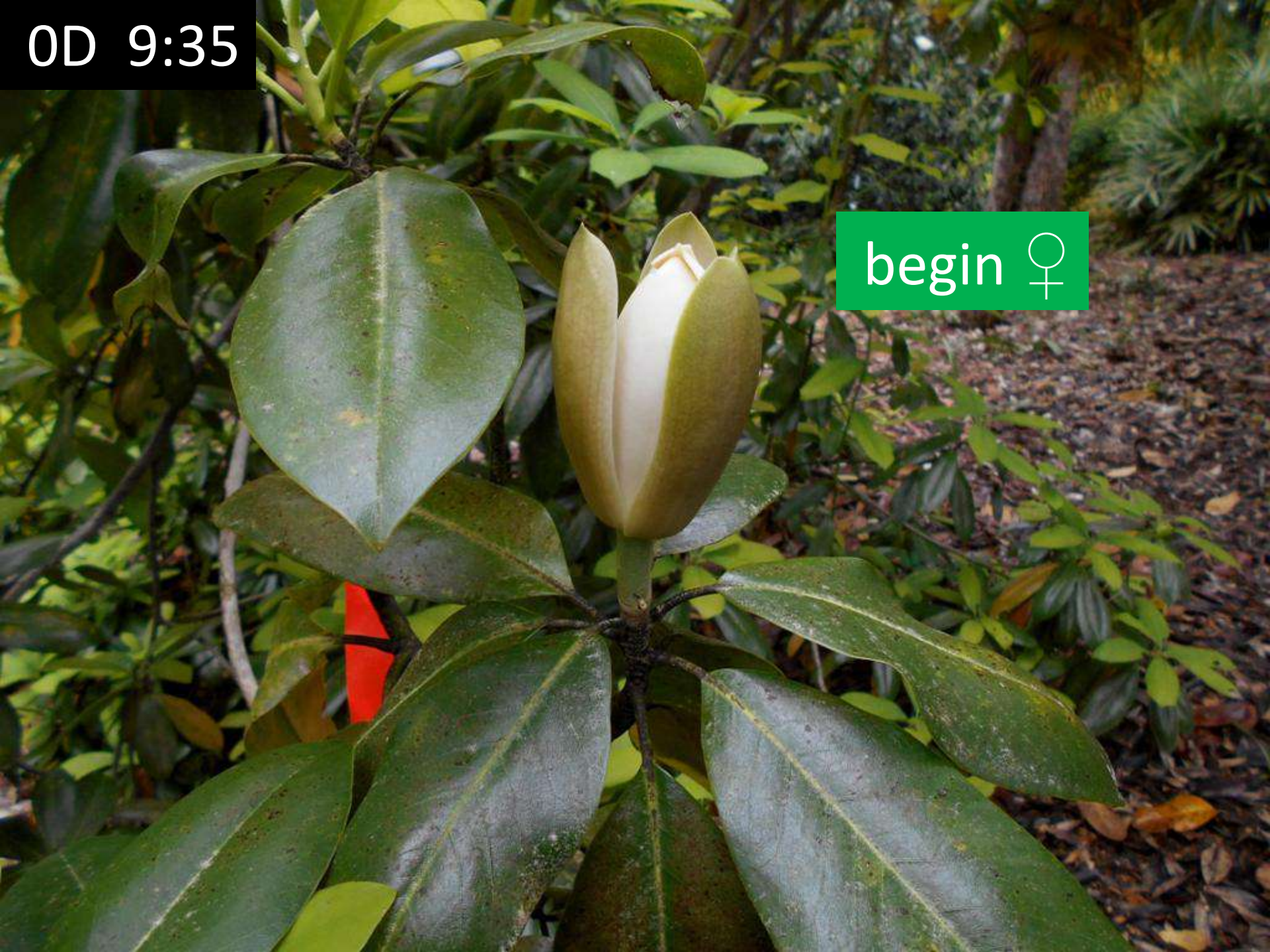


0D 9:24

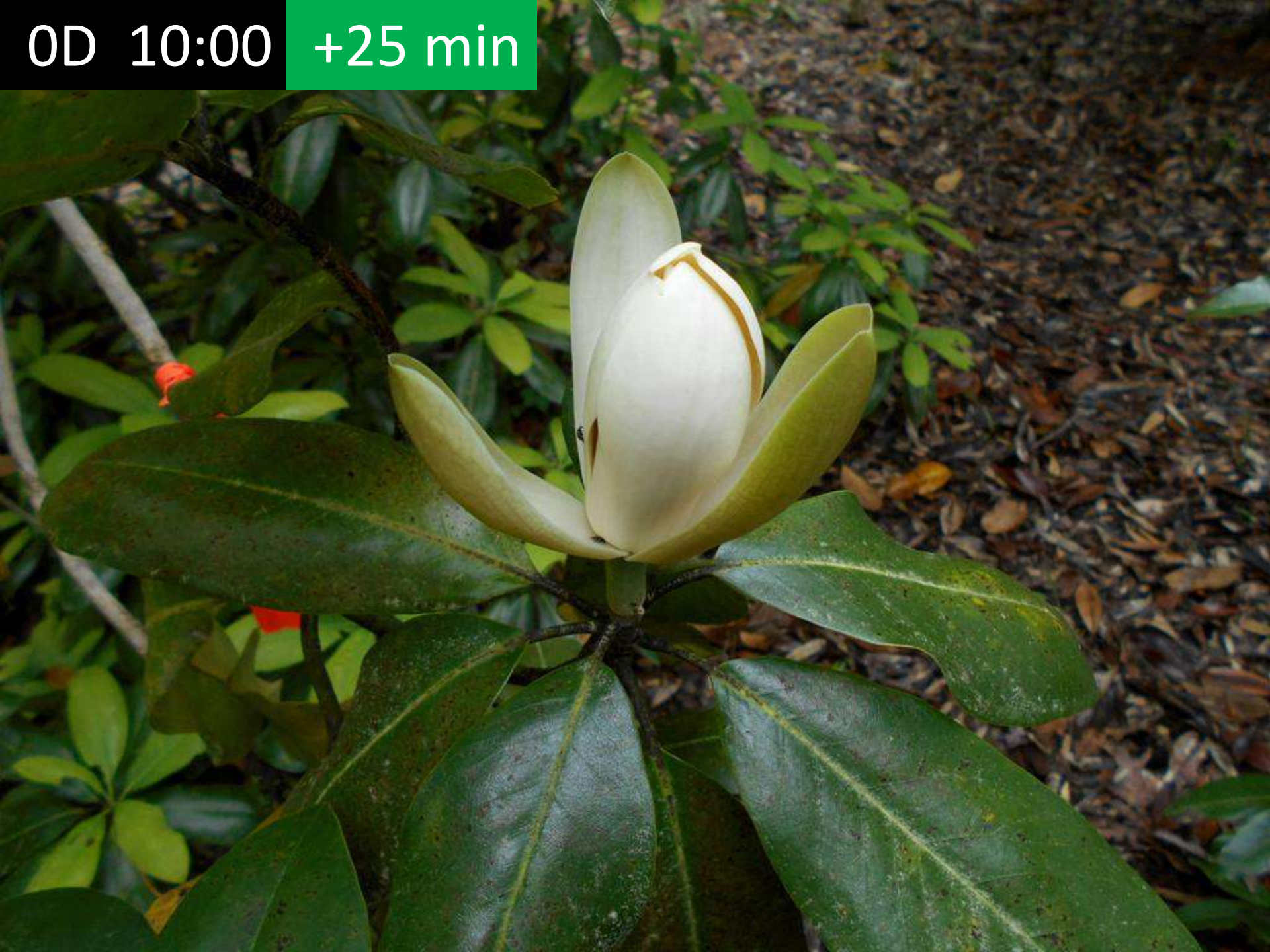


0D 9:35

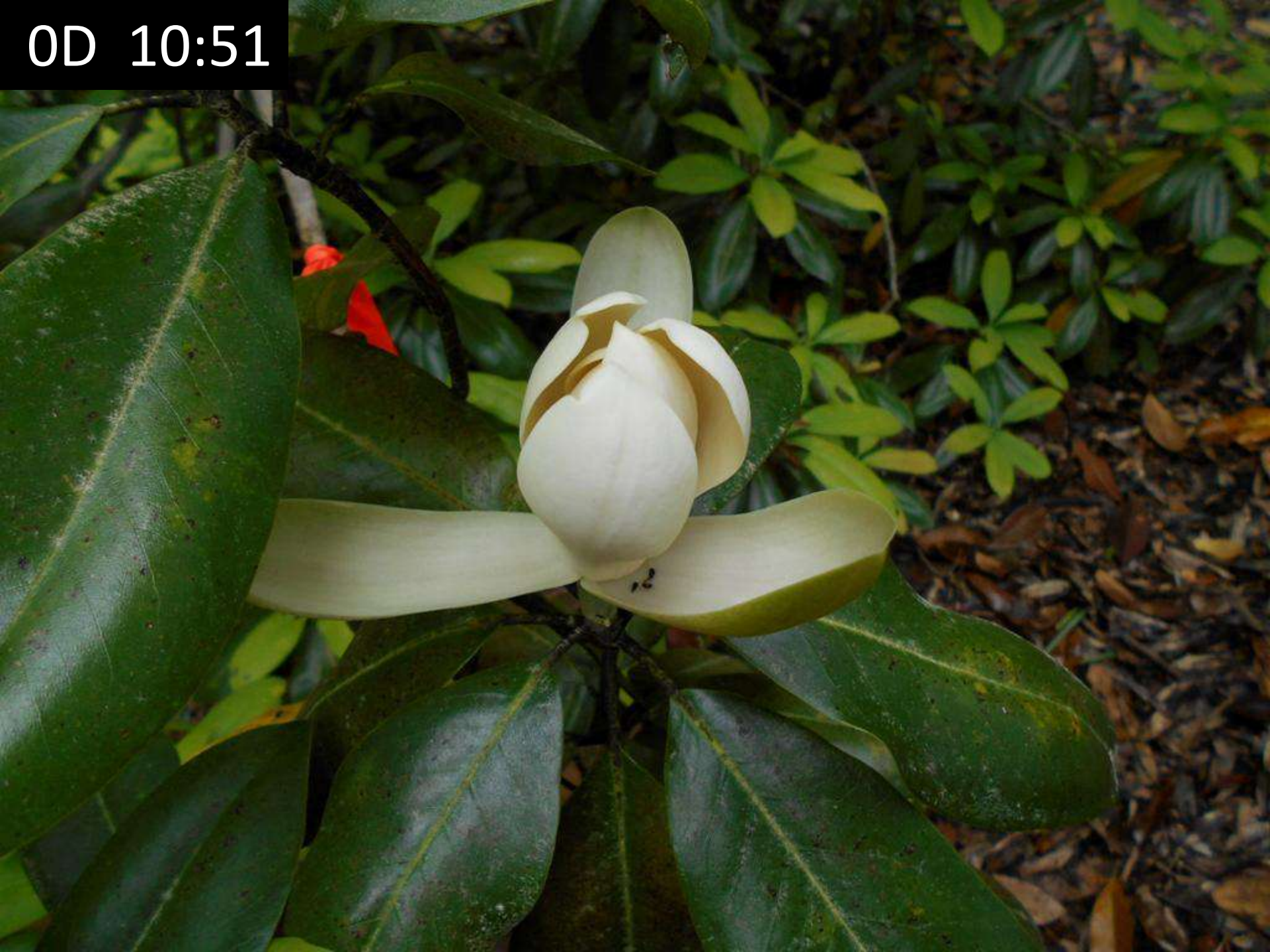
begin ♀



0D 10:00 +25 min



0D 10:51



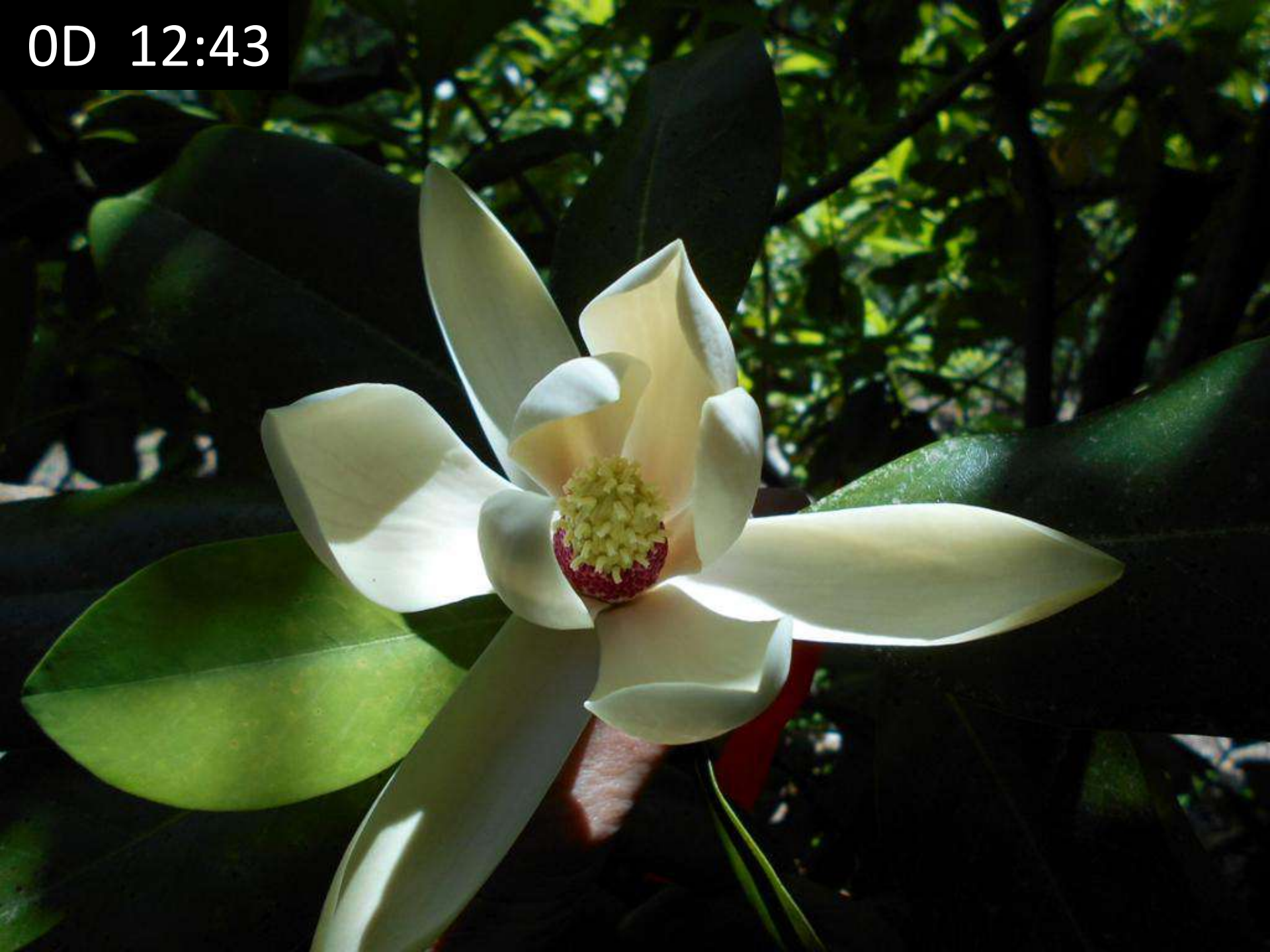
0D 11:27



0D 12:23



0D 12:43





0D 14:59

tepals begin to close



0D 15:01



OD 17:16



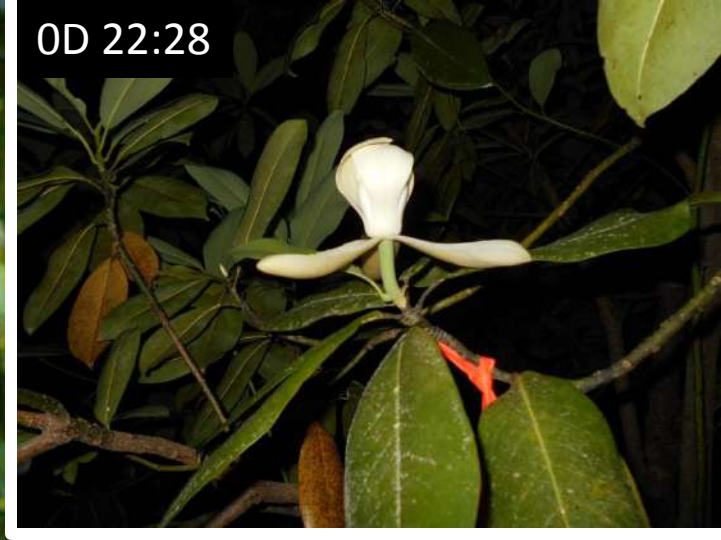
0D 17:53



0D 17:53



0D 22:28



1D 6:02



1D 6:02



1D 8:47

begin ♂

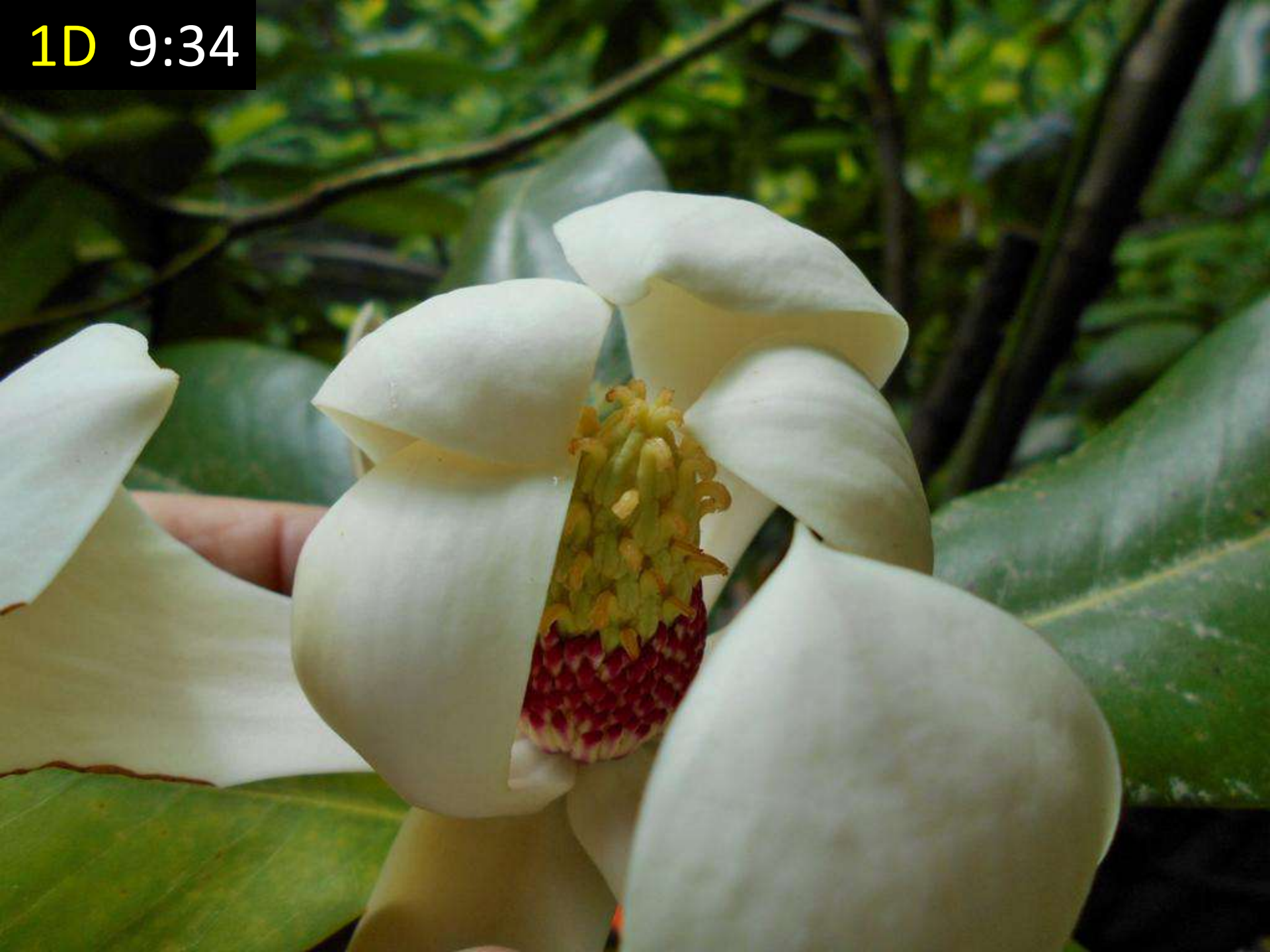




1D 9:33



1D 9:34



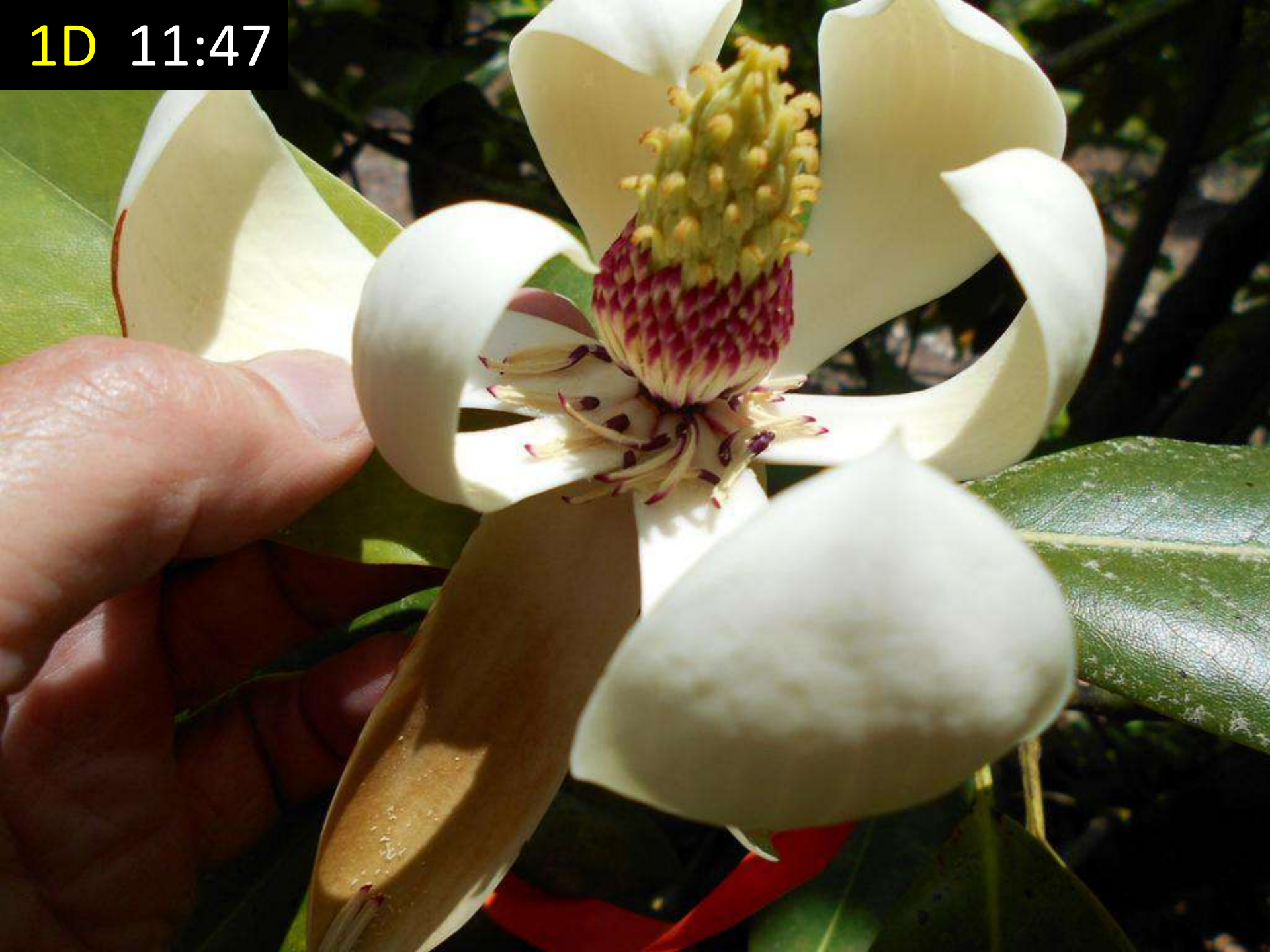
1D 10:59



1D 11:03



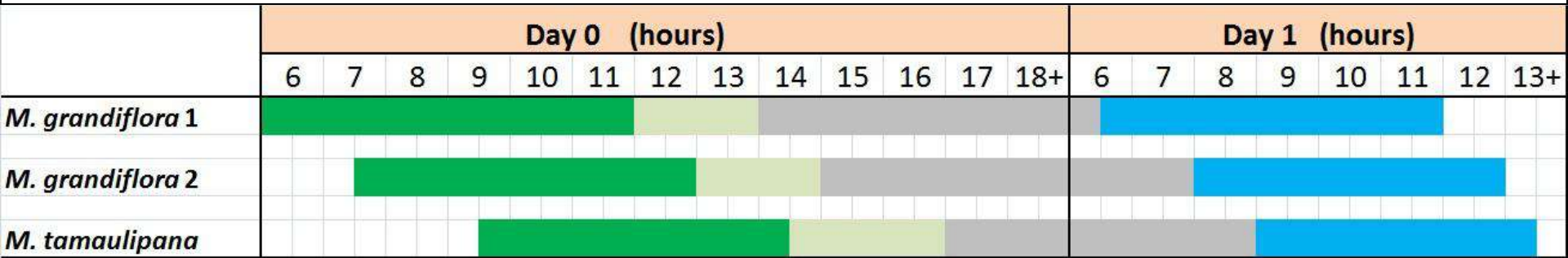
1D 11:47



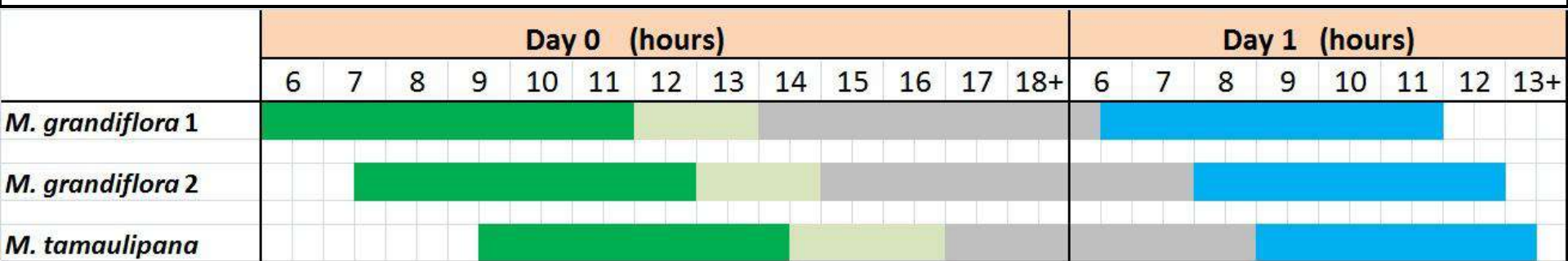
Summary:

# Morning opening model

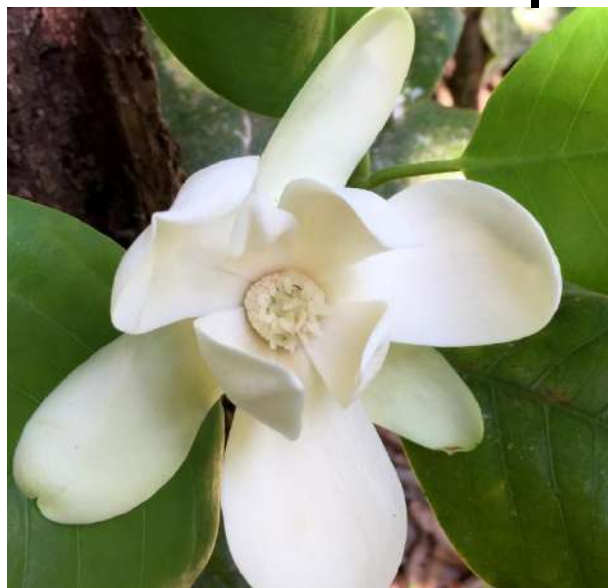
(3 individuals, 2 spp., from *Section Magnolia*)



# Compare: *M. vallartensis* and *M. poasana* (Section *Magnolia*)



Neil Gerlowski



0D 11:57

*Magnolia vallartensis*

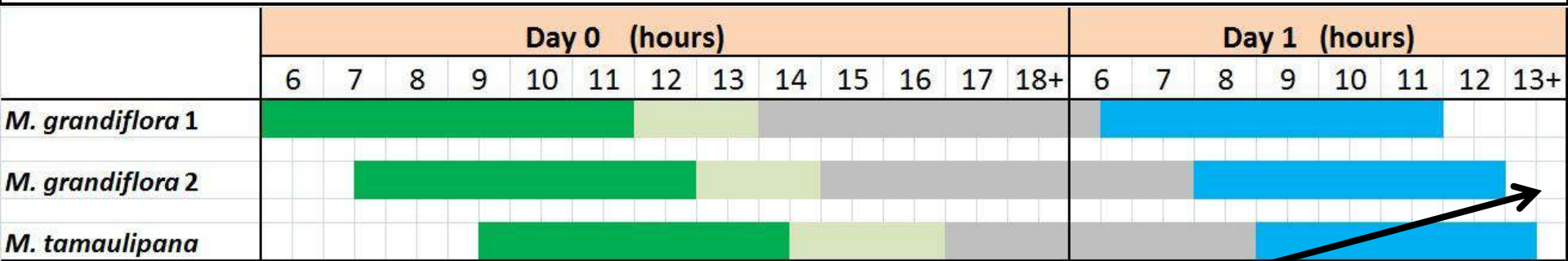
Mario Posla



1D 14:13

*M. poasana*

# Compare: *M. grandiflora* and *M. poasana* (Section *Magnolia*)



1D 14:26

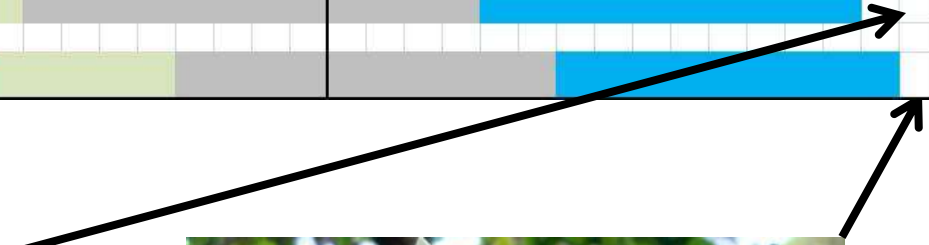
*Magnolia grandiflora* 2

OK



1D 14:13

*M. poasana*

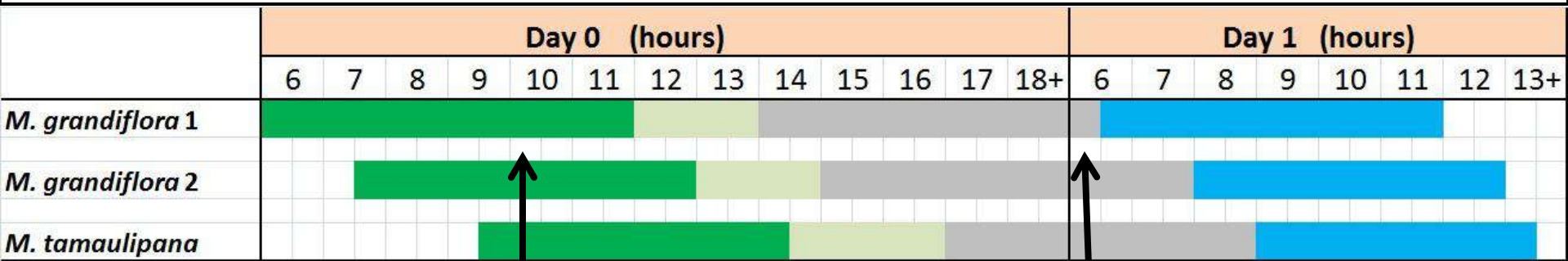




# Compare: *M. splendens* and *M. eckmanii*

## (Subsection *Cubenses*)

photos Emily Veltjen



OD 10:08

OD 10:16

*Magnolia splendens*

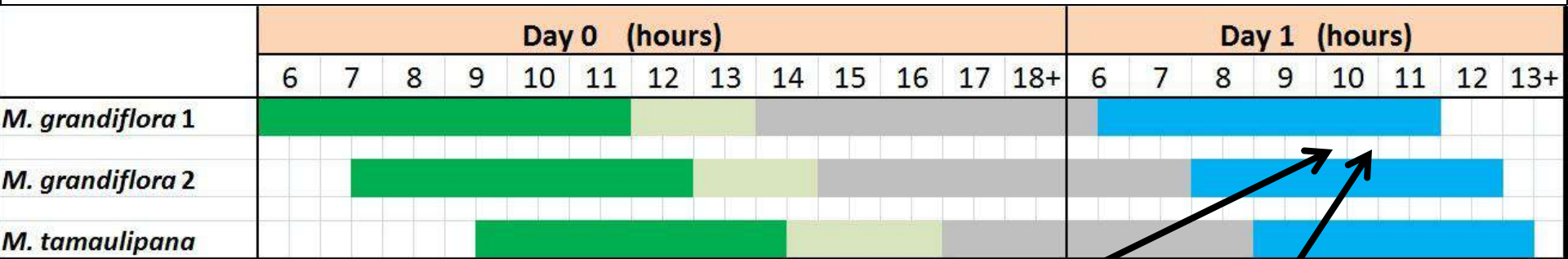


1D 6:04

1D 6:08

*Magnolia eckmanii*

# Compare: *M. yarumalensis* and *M. jaenensis* (Subsection *Dugandiodendron*)



Álvaro J. Pérez



1D 10:30

*Magnolia yarumalensis*



1D 10:49

*Magnolia jaenensis*

\*\*\*\* VERY PRELIMINARY \*\*\*\*

Clade	fl. opens 1x or 2x	fl. timing of Anthesis	stamens at male-phase	Branching pattern	Stipule scar on petiole
Michelia s.l.	1x	Day	<b>persistent</b>	<b>prolepsis</b>	various
Yulania s.l.	1x	Day	<b>persistent</b>	<b>prolepsis</b>	intermediate
Gynopodium	Nastic 2x	Evening	<b>persistent</b>	syllipsis	no scar
Macrophylla	1x	Morning	caducous	syllipsis	intermediate
Auriculata	Nastic 2x	Evening	caducous	syllipsis	intermediate
Rhytido. s.s.	Nastic 2x	Evening	caducous	syllipsis	intermediate
Oyama s.s.	Nastic 2x	Evening	<b>persistent</b>	<b>prolepsis</b>	intermediate
Manglietia	Nastic 2x	Evening	caducous	syllipsis	intermediate
Magnolia	Nastic 2x	Morning*	caducous	syllipsis	no scar (-2mm)*
Gwillimia	Nastic 2x	Evening**	caducous	syllipsis	+/- Full scar
Talauma s.s.	Nastic 2x	Evening	caducous	syllipsis	+/- Full scar
Cubens./Dug.	Nastic 2x	Morning	caducous	syllipsis	no scar
Chocotalauma	Nastic 2x?	?	caducous	syllipsis	no scar (-2mm)

Clade	fl. opens 1x or 2x	fl. timing of Anthesis	Stipule scar on petiole
Michelia s.l.	1x	Day	various
Yulania s.l.	1x	Day	intermediate
Gynopodium	Nastic 2x	Evening	no scar
Macrophylla	1x	Morning	intermediate
Auriculata	Nastic 2x	Evening	intermediate
Rhytido. s.s.	Nastic 2x	Evening	intermediate
Oyama s.s.	Nastic 2x	Evening	intermediate
Manglietia	Nastic 2x	Evening	intermediate
Magnolia	Nastic 2x	Morning*	no scar (-2mm)*
Gwillimia	Nastic 2x	Evening**	+/- Full scar
Talauma s.s.	Nastic 2x	Evening	+/- Full scar
Cubens./Dug.	Nastic 2x	Morning	no scar
Chocotalauma	Nastic 2x?	?	no scar (-2mm)

### Exceptions:

*M. virginiana*\*



Evening

+/- Full scar



Morning

*M. liliifera*\*\*

# Thank you!

Richard B. Figlar

[magnolia@magnoliaceae.org](mailto:magnolia@magnoliaceae.org)



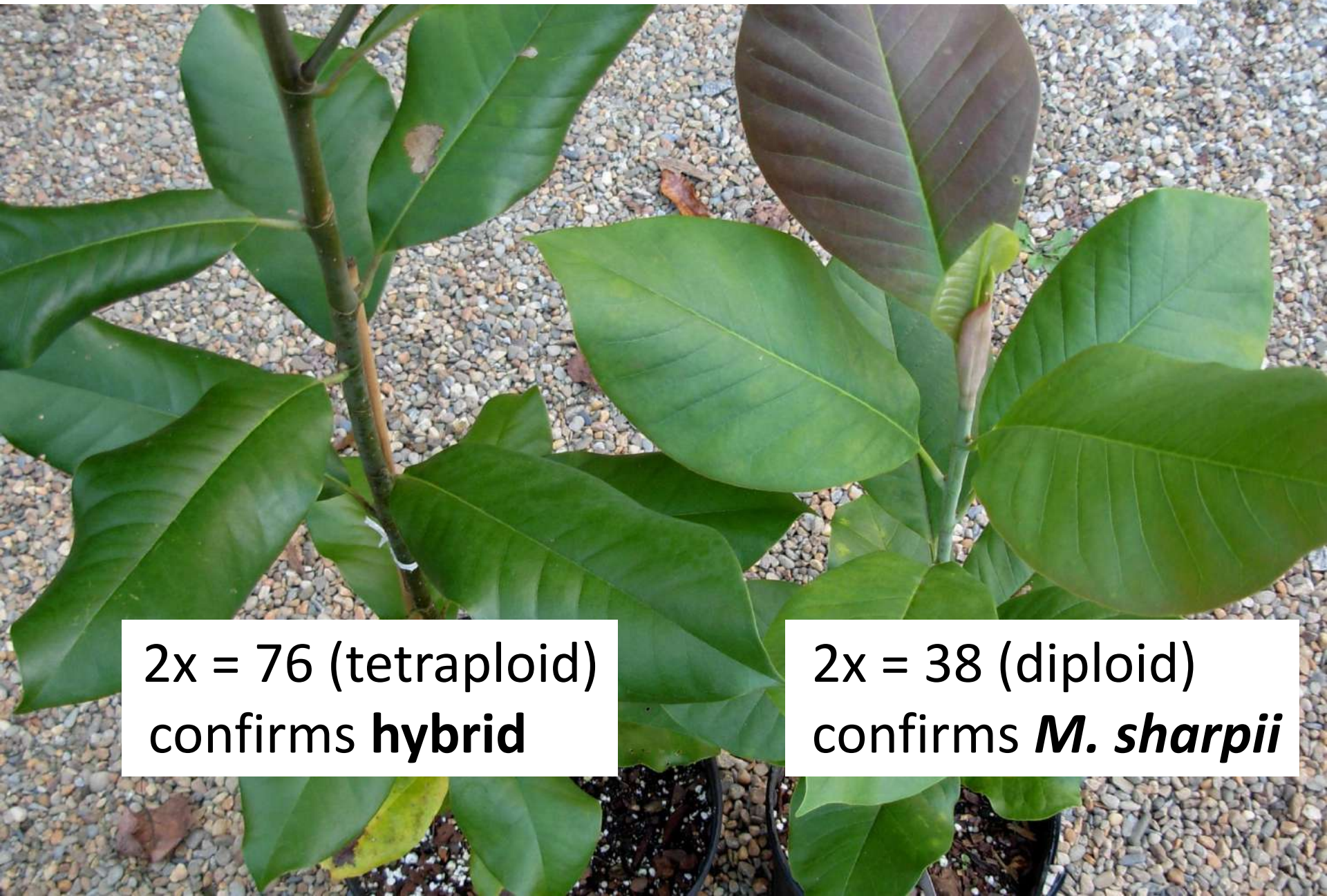
In ex-stu cultivation . . .

## ***Magnolias* spp. CAN hybridize:**

**Seedlings from *M. sharpii* (seed lot. # 81.0939)  
received from U. Calf. Berkeley in 2013**



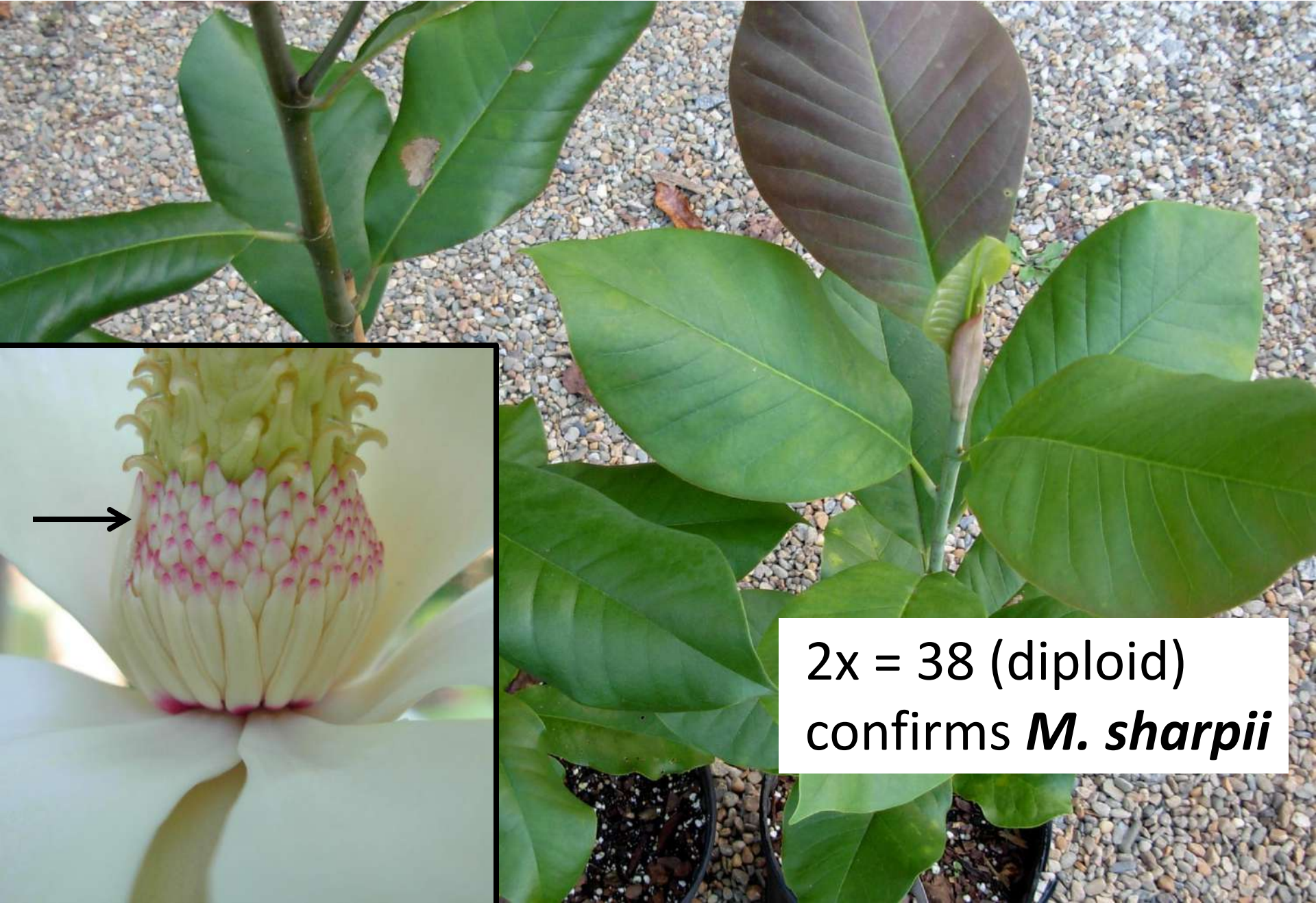
**Ploidy of both plants was then tested:**



$2x = 76$  (tetraploid)  
confirms **hybrid**

$2x = 38$  (diploid)  
confirms ***M. sharpii***

Stamen color confirms: *M. sharpii* × *M. tamaulipana*



2x = 38 (diploid)  
confirms *M. sharpii*



## How to deal with this problem?

1. Avoid planting *Magnolia* spp. from same Subsection close to each other.
2. Only collect seeds from fruits of “hand-pollinated” flowers.

# Short guide to hand pollination

(using *M. grandiflora* as an example)

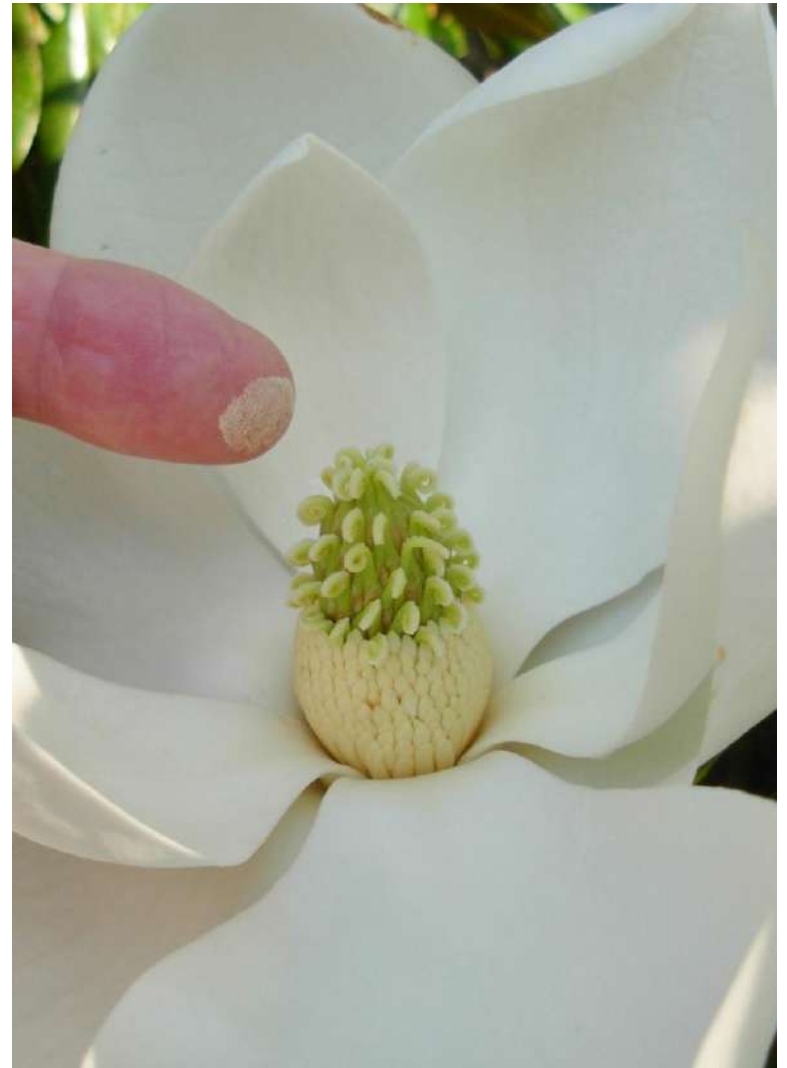
# 1. Collect pollen



2. Bring pollen inside. After 1-2 hours, remove stamens. Use within 1 week, or store for later use in refrigerator (4°-5°C)



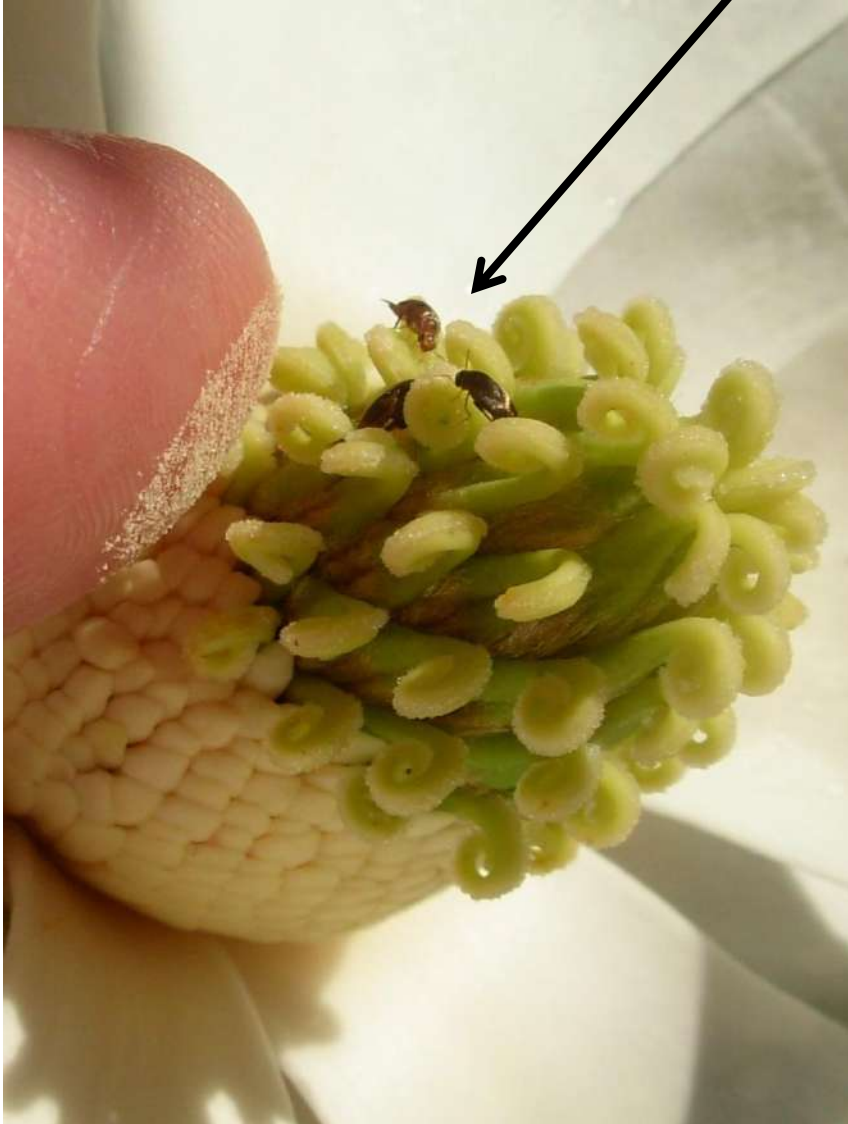
### 3. Pollinate a candidate flower using the forefinger.



4. Gently “touch” stigmas (from top to bottom and all around the gynoecium)



# Beware of beetle competition!



Thus, it is best to pollinate as soon as the flower begins to open into ♀

## 5. Temporary protection from insect pollinators . . .







**... or Rain**

## 6. Protect developing fruits.

