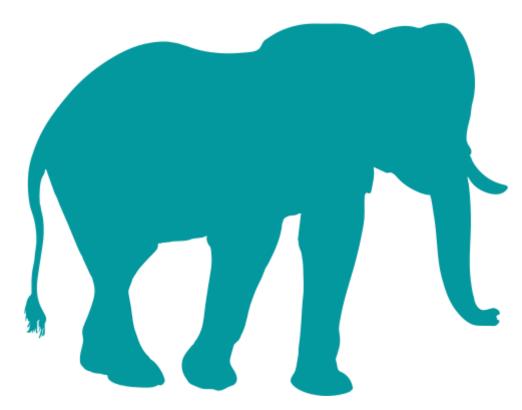
# Elephant Welfare Project Elephant Behavioural Welfare Tool Android App Instructions Setting up the app



www.elephantwelfareproject.org







## About the App: The Science

- Elephant Behavioural Welfare Assessment Tool
- Co-produced with UK zoo staff
- Rigorous scientific development and validation<sup>1,2,3</sup>
- Legislated for use in UK
- Used since 2015 by UK zoos
- Used internationally at captive elephant facilities (e.g. France, Indonesia)

<sup>1</sup> Yon L, Williams E, Harvey ND, and Asher L (2019). Development of a Behavioural Welfare Assessment Tool for Routine Use with Captive Elephants. PLOS ONE 14(2): e0210783. https://doi.org/10.1371/journal.pone.0210783. <sup>2</sup> Williams E, Chadwick CL, Yon L and Asher L. (2018). A review of the current indicators of welfare in captive elephants (Loxodonta africana and Elephas maximus). Animal Welfare, 27 (3): 235-249. https://doi.org/10.7120/09627286.27.3.235 <sup>3</sup> Chadwick CL, Williams E, Asher B and Yon L (2017). Incorporating stakeholder perspectives into the assessment of captive elephant welfare. Animal Welfare, 26 (4): 461-472.

 2018 Universities Federation The Old School, Brewhouse Hill, Hertfordshire AL4 8AN, UK www.ufaw.org.uk

A review of (Lo

thool of Animal Rural and stringhamshire NG25 OQF cosystems and Environme reater Manchester MS 4W ichool of Veterinary Medi E12 SRD, UK Centre for Behaviour and concret for correspon

oncerns over elephon velfare in UK zoos, n

tool, we aimed to and of Knowledge and Ou and exclusion criteric appraisal tool. Thirty-Behavioural measure Stereotypies were th and body condition improved welfare st require further valor ment, were: increar mention forms a criteric contino forms a criteric mention forms a criteric contino forma crit

Keywords: an

Introduction Zoo elephant v been publicly Mason 2002; spread respon





#### RESEARCHARTICLE Development of a behavioural welfare assessment tool for routine use with captive elephants

#### Lisa Yon<sup>1\*</sup>, Ellen Williams<sup>2</sup>, Naomi D. Harvey<sup>1</sup>, Lucy Asher<sup>3</sup>

1 School of Veterinary Medicine and Science, Faculty of Medical & Health Sciences, The University of Nottingham, Sutton Bonington, Leicestershire, United Kingdom, 2 School of Animal Rural and Environmental Sciences, Nottingham Trent University, Brackenhurst Campus, Southwell, Nottinghamshire, United Kingdom, 3 Centre for Behaviour and Evolution, Institute of Neuroscience, Newcastle University, Framlington Place, Newcastle, United Kingdom

\* lisa.yon@nottingham.ac.ul

#### Abstract

#### G OPEN ACCESS

Citation: Yon L, Williams E, Harvey ND, Asher L (2019) Development of a behavioural wefare assessment toof for routine use with captive elephants. PLoS ONE 14(2): e0210783. <u>https://doi. org/10.1371/journal.pone.0210783</u>

Editor: Elissa Z Cameron, University of Tasmani AUSTRALIA

Received: February 1, 2018

Accepted: January 2, 2019 Published: February 6, 2019

Copyright: © 2019 Yon et al. This is an open access article distributed under the terms of th

permits unrestricted use, distribution, and reproduction in any medium, provided the origin: author and source are credited.

metrictions apply to the individual level date

There has been much concern in recent years about the welfare of elephants in zoos across North America and Europe. While some previous studies have assessed captive elephant welfare at a particular point in time, there has been little work to develop methods which could be used for regular, routine welfare assessment. Such assessment is important in order to track changes in welfare over time. A welfare assessment tool should be rapid, reable, and simple to complete, without requiring specialist training and facilities; welfare essments based on behavioural observations are well suited to this purpose. This re escribes the development of a new elephant behavioural welfare assessment tool designed for routine use by elephant keepers. Tool development involved: (i) identificatio of behavioural indicators of welfare from the literature and from focus groups with relevant stakeholders: (ii) development of a prototype tool: (iii) testing of the tool at five UK zoologica institutions, involving 29 elephants (representing 46% of the total UK captive elephant popu ation of 63 animals); (iv) assessment of feasibility and reliability of aspects of the prototype nent of the validity of each element of the tool to reflect the relevant beha our by comparing detailed behavioural observations with data from the prototype tool: (vi) ment of known-groups criterion validity by comparing prototype tool scores in indivi uals with demographics associated with better or worse welfare; (vii) development of a finaled tool which incorporated all elements of the tool which met the criteria set for validity and bility. Elements of the tool requiring further consideration are discussed, as are o

85 / / .

S, University

liversity of

enhurst C

nline Southwell

congham.ac.uk

#### captivin.

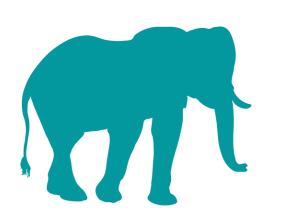
were's is visit a coppie clear that improveer stakeholders on the assessment of plured in the published iterature. As is, and new porse focus published of welfare indicators: behavioural of the physical environment such informed by the knowledge and ed elsewhere, in order to draw.

w of elephant welfare problems, reproductive as indicators of poce



# What the tool can (and cannot) do

- Use behaviour to assess welfare (keepers/mahouts)
- Repeated, regular use
- Monitor <u>each elephant's</u> welfare over time
- Help identify when welfare changes (1 or ])



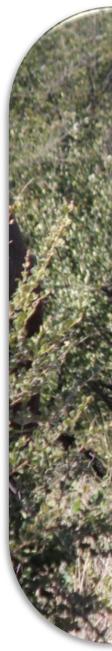


Photo credit Lisa Yon

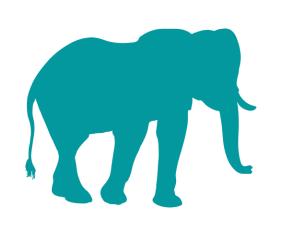






# What the tool can (and cannot) do

- Doesn't give a single number for an elephant's welfare
- Not designed to directly compare between facilities
- Okay for each facility to use differently
- Track individual elephant welfare





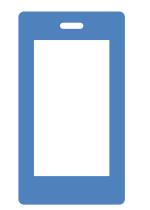


Tool helps see changes over time.....



Photo credit Lisa Yon

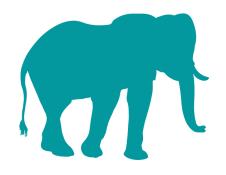
## **About the App**





## Device type

How Often





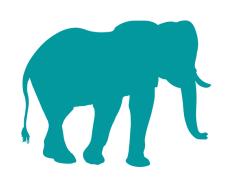


## Information on changes

## How to Use This App

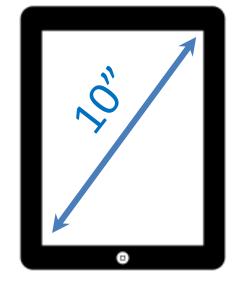
**Device** Type Android Tablet (not phone) •Screen size  $\geq 10''$ Android 7.0 or later





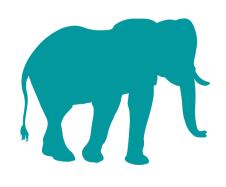


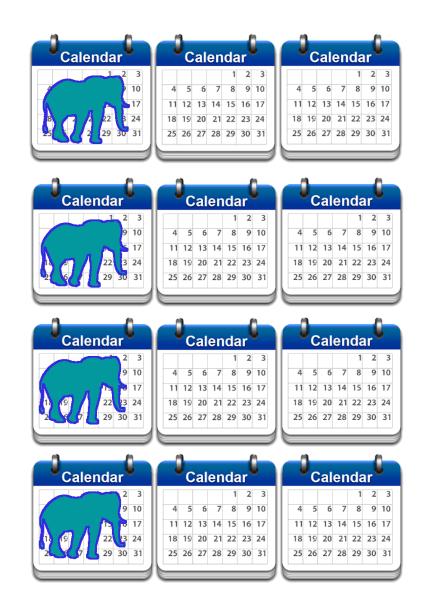




# **How Often?**

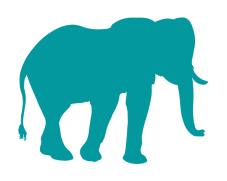
- App purpose: Measure <u>changes in welfare</u>
- Use at least every three (3) months
- More often when a change happens
  - $\circ$  Husbandry
  - $\circ$  Health
  - $\circ$  Facilities
  - Elephants (death, birth, elephant moves)
  - OAny other change that might affect your elephant...

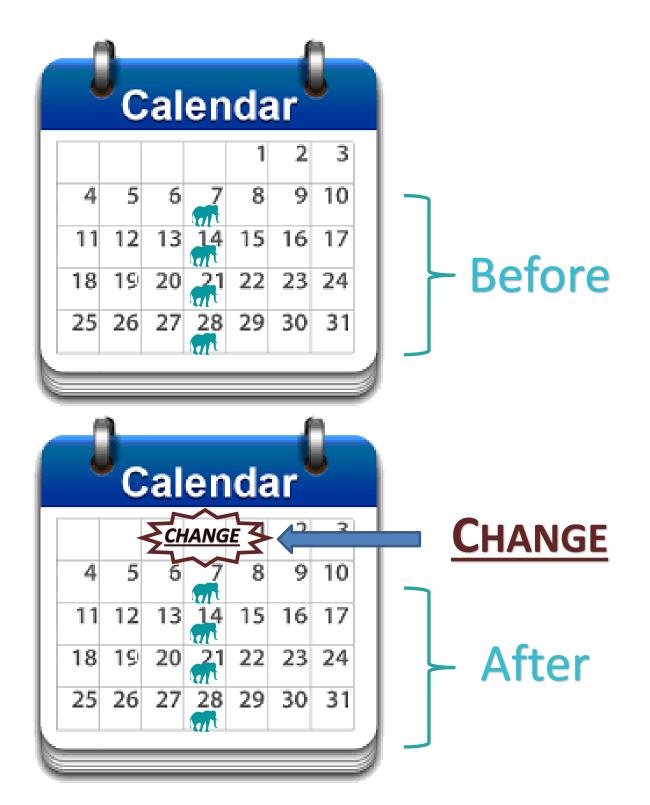




## Change = Use App More Often

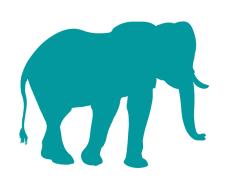
- Before change (if planned): every week (for 3-4 weeks)
- After change:
  - every week (for 3-4 weeks)
- <u>Submit details</u> about the change on app





## Change Details onto the App

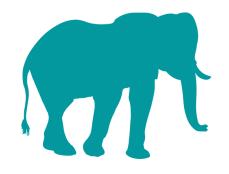
- What (details)
  When (first hannen
- When (first happened)
- Very important to submit this information
  - Purpose of app: tell you if caused any changes in elephant's welfare





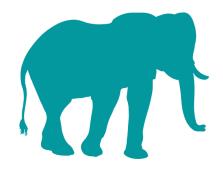
# How to set up the app

- Add your collection details
- Add details about your elephants
- Add details about the assessors
- Tour of the home screen



## s ephants essors

# **First How to add your collection details**





Please register your institution to start using the Elephant Behavioural Welfare Assessment Tool

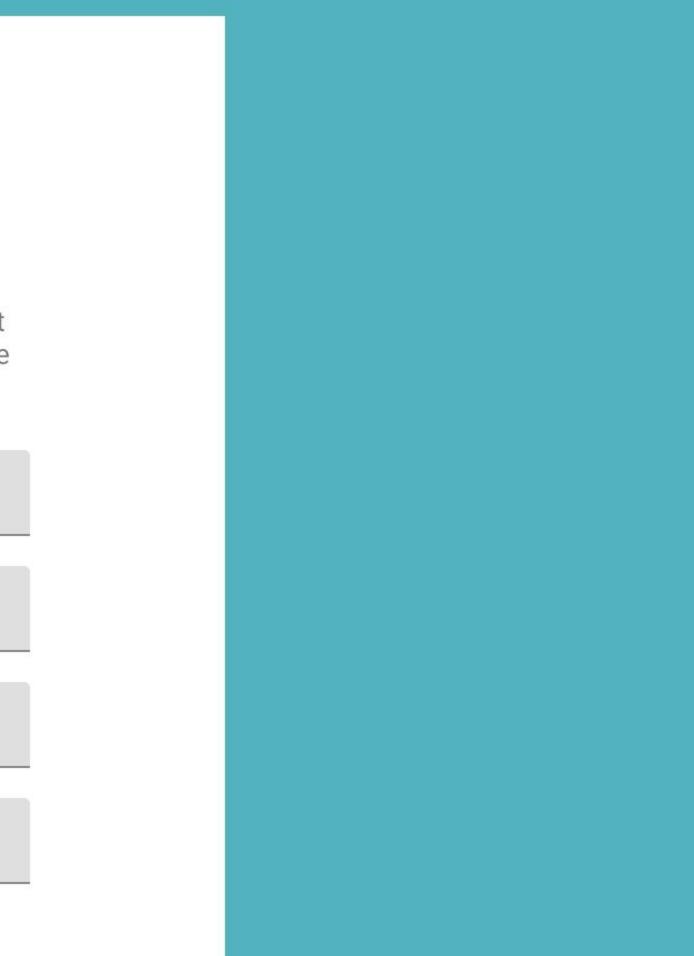
Institution Name

Name (Point of contact)

Email Address (Point of contact)

Phone Number (Point of contact)

Developed by Rantmedia®





Please register your institution to start using the Elephant Behavioural Welfare Assessment Tool

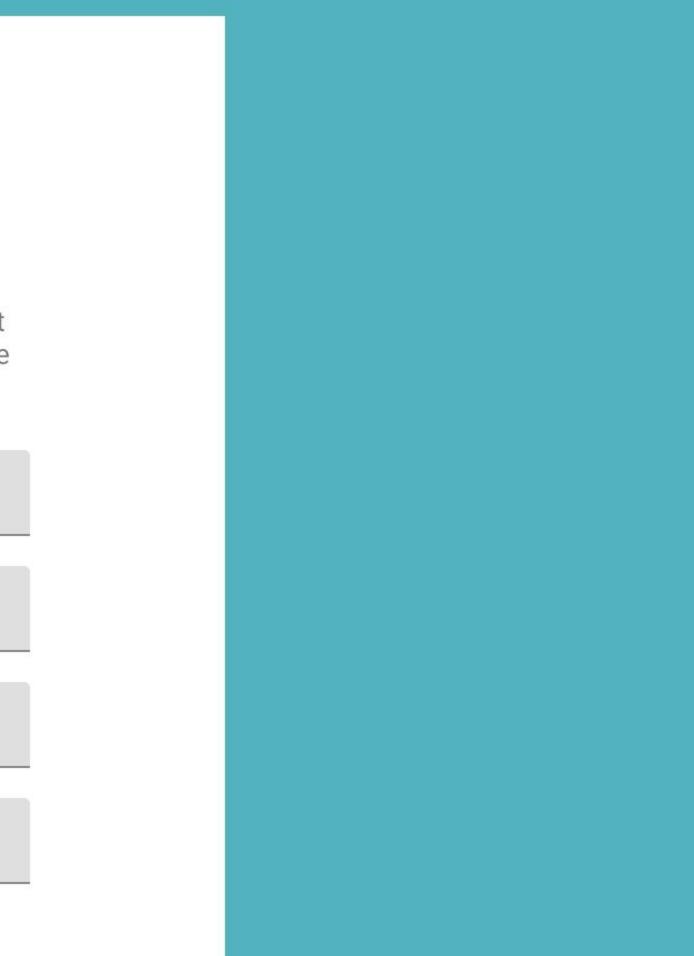
Institution Name

Name (Point of contact)

Email Address (Point of contact)

Phone Number (Point of contact)

Developed by Rantmedia®





Please register your institution to start using the Elephant Behavioural Welfare Assessment Tool

Institution Name

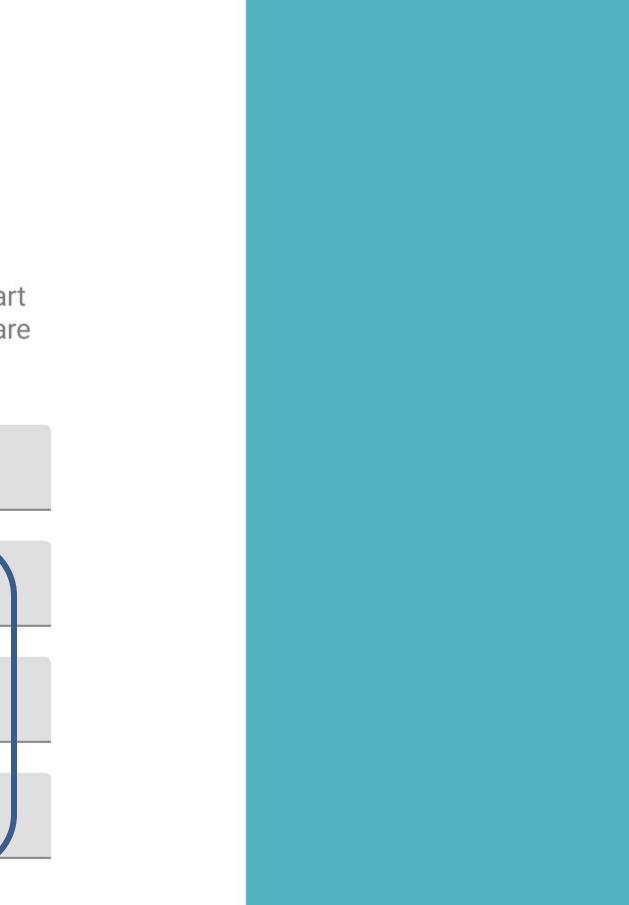
Name (Point of contact)

Email Address (Point of contact)

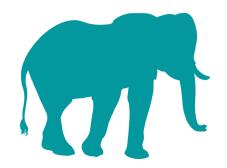
Phone Number (Point of contact)



Developed by Rantmedia®



# Second How to add details about your elephants





## ₲ ELEPHANTS & ASSESSORS



+ ADD ELEPHANT



💎 📋



Start by selecting the 'add elephant' button to add all elephants within your Institution

## **Add Elephant Information**

Elephant Name Chiang Lek					
Studbook Number 112233	۲				
Sex					
O Male	Female				
Genus					
O African	Asian				
Date Born					
O Known	<ul> <li>Estimated</li> </ul>	Day <b>1</b>	Month 1	Year 1975	
Date Entered	Captivity				
O Known	<ul> <li>Estimated</li> </ul>	Day 5	Month <b>4</b>	Year <b>1989</b>	
Date Arrived At Current Institution					
Known	O Estimated	Day 23	Month 8	Year 2003	

Health Concerns



Sex O Male	Female			
Genus O African	O Asian			
Date Born	O Estimated	Day 03	Month 06	Year 2005
Date Entered Capt	ivity O Estimated	Day 03	Month 06	Year 2005
Date Arrived At Cu	rrent Institution	-		
O Known	O Estimated	Day 03	Month 06	Year 2005
Health Concerns				

Select any related elephants to the focal elephant from the list below, indicating what relationship this new elephant is to the focal elephant.

Grey Mystery

ADD NEW FAMILY MEMBER

SAVE

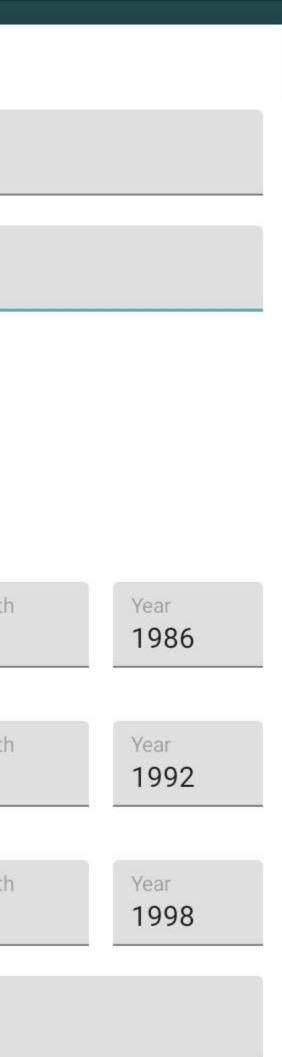
Sex O Male	Female			
Genus <ul> <li>African</li> </ul>	O Asian			
Date Born	O Estimated	Day 03	Month 06	Year 2005
Date Entered Capt	Estimated	Day 03	Month 06	Year 2005
Date Arrived At Cu	rrent Institution	Day 03	Month 06	Year 2005
Health Concerns				

Select any related elephants to the focal elephant from the list below, indicating what relationship this new elephant is to the focal elephant.





WP Sanctua	ry	Add New Family Member			
Elephant Name Chiang Lek		Elephant Name Grey Myster	у		
Studbook Number 112233	ř	Studbook Number 3344556	er		
Sex O Male	Female	Sex O Male	Female		
Genus O African	Asian	Genus O African	<ul> <li>Asian</li> </ul>		
Date Born		Date Born			
O Known	Estimated	() Known	Estimated	Day <b>1</b>	Month 5
Date Entered (	Captivity	Date Entered	Captivity		
O Known	Estimated	() Known	Estimated	Day 1	Month 5
Date Arrived A	t Current Institu	Date Arrived A	At Current Institution		
Known	O Estimated	Known	O Estimated	Day 10	Montl 3
Health Concerns Lame right h	ind, chronic foc	Health Concerns			

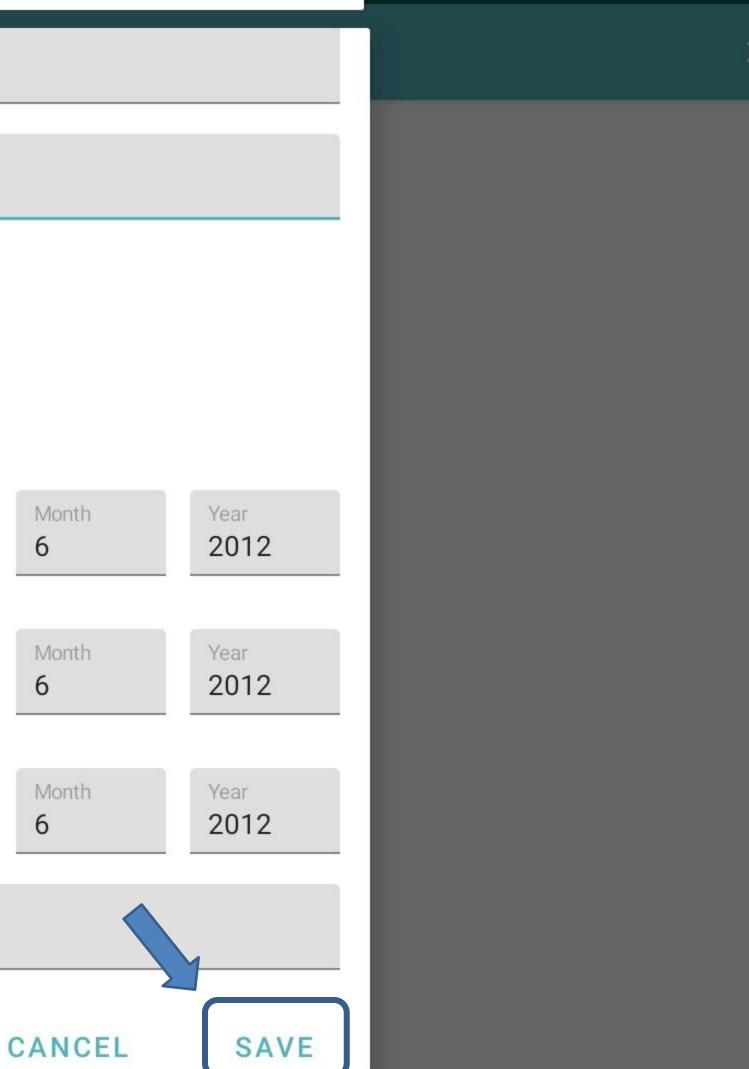


WP Sanctua	Add New Family Member				
Elephant Name Chiang Lek		Elephant Name Grey Myster	у		
Studbook Numbe	er	Studbook Number 3344556	er		
Sex O Male	Female	Sex O Male	Female		
Genus O African	Asian	Genus O African	Asian		
Date Born		Date Born			
🔿 Known	Estimated	() Known	Estimated	Day 1	Month 5
Date Entered	Captivity	Date Entered	Captivity		
🔿 Known	Estimated	() Known	Estimated	Day 1	Month 5
Date Arrived A	At Current Institu	Date Arrived A	At Current Institution		
Known	O Estimated	Known	O Estimated	Day 10	Month 3
Health Concerns	nind, chronic foc	Health Concerns			



## FWDe

WP Sanctua	ry	Elephant Name Smoke			
Elephant Name Chiang Lek		Studbook Numbe 665544	r		
Studbook Numbe	r	Sex Male	() Female		
Sex O Male	Female	Genus O African	Asian		
Genus O African	Asian	Date Born			
Date Born	U / tordin	Known	O Estimated	Day 15	Month 6
🔿 Known	Estimated	Date Entered (	Captivity		
Date Entered	Captivity	Known	O Estimated	Day 15	Month 6
🔿 Known	Estimated	Date Arrived A	At Current Institution		
Date Arrived A	At Current Institu	Known	O Estimated	Day 15	Month 6
Known	O Estimated	Health Concerns			
Health Concerns	ind, chronic foc				



Sex O Male	• Female			
Genus O African	O Asian			
Date Born				
O Known	O Estimated	Day 03	Month 06	Year 2005
Date Entered Captivit	ty			
O Known	O Estimated	Day 03	Month 06	Year 2005
Date Arrived At Curre	ent Institution			
O Known	O Estimated	Day <b>03</b>	Month 06	Year 2005
Health Concerns				

Select any related elephants to the focal elephant from the list below, indicating what relationship this new elephant is to the focal elephant.

Grey Mystery		
Relationship	*	
Smoke		
+ ADD NEW FAMIL	LY MEMBER	

Sex O Male	Female			
Genus	🔿 Asian			
Date Born				
O Known	O Estimated	Day 03	Month 06	Year 2005
Date Entered Capt	ivity			
O Known	O Estimated	Day <b>03</b>	Month 06	Year 2005
Date Arrived At Cu	rrent Institution			
O Known	O Estimated	Day 03	Month 06	Year 2005
Health Concerns				

Select any related elephants to the focal elephant from the list below, indicating what relationship this new elephant is to the focal elephant.

Grey Mystery		
Relationship	•	
Smoke		
ADD NEW FAMILY MEMBER		



ADD NEW TAWNET WER

EV 'P	Mother				
s	Father				
G	Daughter				
1	Son				
D	Brother	Day 03	Month 06	Year <b>2005</b>	
D	Sister				
	Grandmother	Day 03	Month 06	Year 2005	
D	Grandfather	Day	Month	Year	
	Granddaughter	03	06	2005	
	Grandson				
	Aunt				
S	Uncle	elephant from th cal elephant.	he list below, ind	licating what	
	Cousin				
	Relationship				
C	Smoke	-			

#### ADD NEW FAMILY MEMBER

Genus O African	🔿 Asian					
Date Born						
O Known	O Estimated	Day <b>03</b>	Month 06	Year 2005		
Date Entered Captiv	Date Entered Captivity					
O Known	O Estimated	Day <b>03</b>	Month 06	Year <b>2005</b>		
Date Arrived At Curr	ent Institution					
O Known	O Estimated	Day <b>03</b>	Month 06	Year 2005		
Health Concerns						

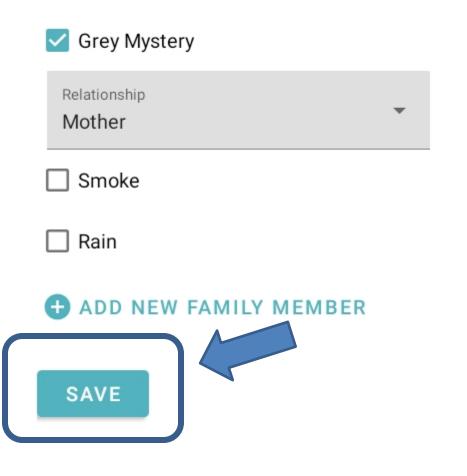
Select any related elephants to the focal elephant from the list below, indicating what relationship this new elephant is to the focal elephant.

Grey Mystery	
Relationship Mother	
Smoke	

ADD NEW FAMILY MEMBER

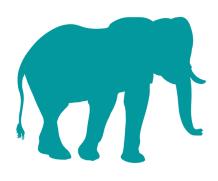
Date Arrived At Current Institution				
Known	O Estimated	Day 03	Month 06	Year 2005
Health Concerns				
Date of Death / Departure				
Additional Information Regarding Death / Departure				

Select any related elephants to the focal elephant from the list below, indicating what relationship this new elephant is to the focal elephant.

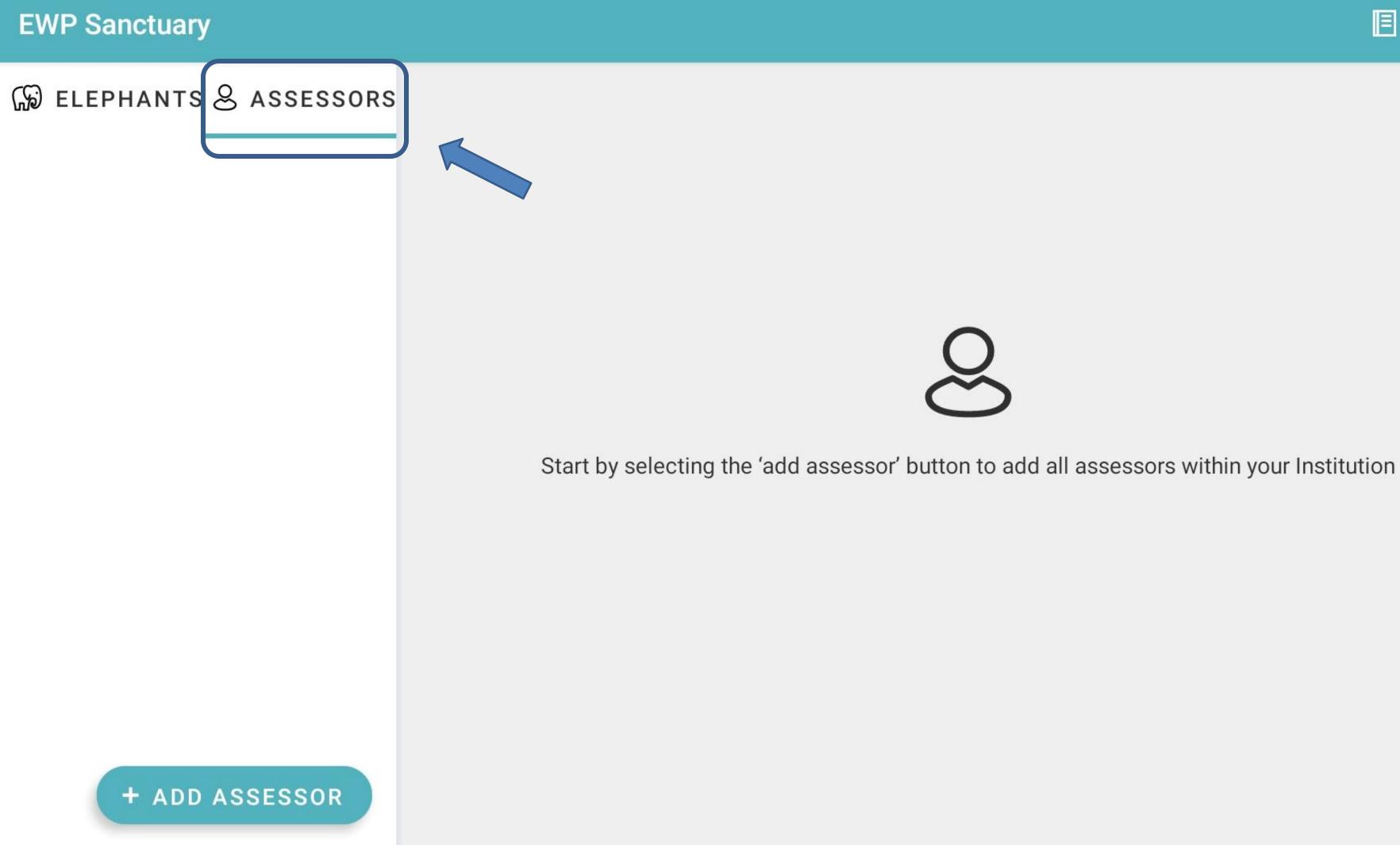


 $\times$ 

# Next How to add details about the assessors











## ₲ ELEPHANTS & ASSESSORS







Start by selecting the 'add assessor' button to add all assessors within your Institution

## Add Assessor Information

Assessor Name

Mary Phillips

Title / Role Head Keeper

No. of Years Working With Elephants

years

No. of Years Working At Institution

3

16

years

Please enter email address and/or phone number.

Email Address

mphillips@gmail.com

Phone Number 07712345678





## Add Assessor Information

Assessor Name

Mary Phillips

Title / Role Head Keeper

No. of Years Working With Elephants

years

No. of Years Working At Institution

3

16

years

Please enter email address and/or phone number.

Email Address

mphillips@gmail.com

Phone Number 07712345678





## ₲ ELEPHANTS & ASSESSORS

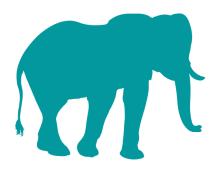


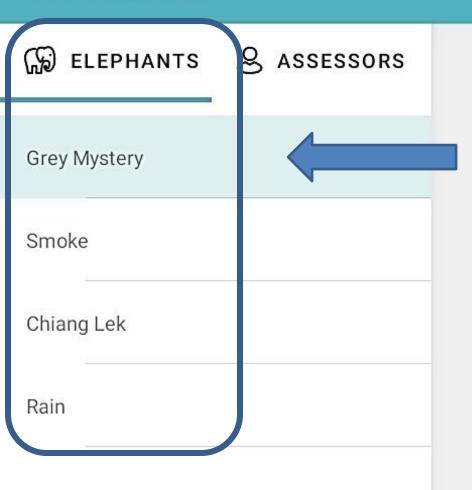




Start by selecting the 'add assessor' button to add all assessors within your Institution

# **Finally** A quick tour of the home screen.





#### + ADD ELEPHANT

#### **Grey Mystery**

## (3344556) 🧪 EDIT

Sex	Genus	Date Born
Female	Asian	1/5/1986 (Estimated
Date Entered Ca	ptivity	Date Arrived At Current
1/5/1992 (Esti	mated)	10/3/1998 (Known)
Date of Death / I	Departure	Additional Info About D
DD/MM/YYYY		N/A
Polated Elephants At Your Collection		

#### Related Elephants At Your Collection

Daughter	Son
Chiang Lek	Rain

#### ♥ VIEW SUMMARY OF HEALTH

#### **Assessment Results**

Enter more assessment data to view the assessment results

d)

nt Institution

Departure

#### ASSESSMENTS

All sections should be completed within one week (7 consecutive days)

#### Section A

Qualitative Behavioural Assessment

#### ✓ COMPLETE

#### Section B

Daytime activity

#### ENTER ASSESSMENT

#### Section C

Night-time activity



#### + ADD ELEPHANT

#### **Grey Mystery**

## (3344556) 🧪 EDIT

Sex	Genus	Date Born
Female	Asian	1/5/1986 (Estimated
Date Entered Ca	aptivity	Date Arrived At Current
1/5/1992 (Esti	mated)	10/3/1998 (Known)
Date of Death /	Departure	Additional Info About D
DD/MM/YYYY		N/A
Related Elephants At Your Collection		

Daughter Son Chiang Lek Rain

#### ♥ VIEW SUMMARY OF HEALTH

#### **Assessment Results**

Enter more assessment data to view the assessment results

d)

nt Institution

Departure

#### ASSESSMENTS

All sections should be completed within one week (7 consecutive days)

#### Section A

**Qualitative Behavioural Assessment** 

#### ✓ COMPLETE

#### Section B

Daytime activity

#### ENTER ASSESSMENT

#### Section C

Night-time activity

#### & ASSESSORS 😡 ELEPHANTS

Grey Mystery

Smoke

Chiang Lek

Rain

## Date Entered Captivity

1/5/1992 (Estimated)

**Grey Mystery** 

Sex

Female

Date of Death / Departure

DD/MM/YYYY

N/A

Date Born

#### **Related Elephants At Your Collection**

Genus

Asian

Daughter Son Chiang Lek Rain

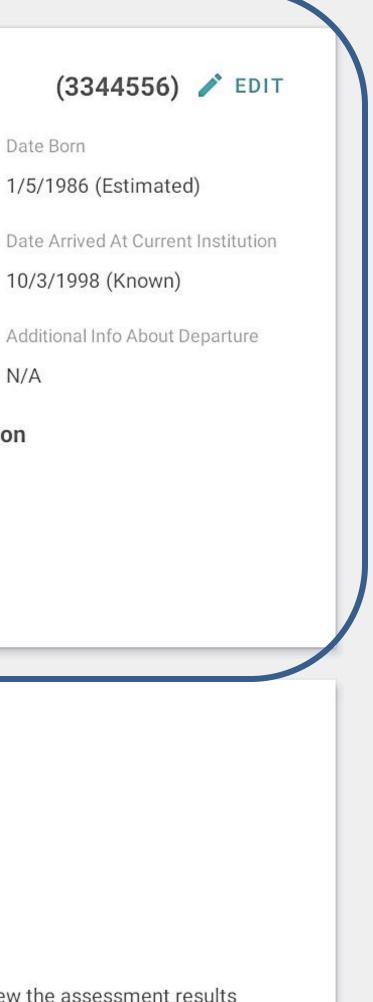
#### ♥ VIEW SUMMARY OF HEALTH

#### **Assessment Results**

Enter more assessment data to view the assessment results

+ ADD ELEPHANT





#### ASSESSMENTS

All sections should be completed within one week (7 consecutive days)

#### Section A

**Qualitative Behavioural Assessment** 

#### ✓ COMPLETE

#### Section B

Daytime activity

#### ENTER ASSESSMENT

### Section C

Night-time activity

& ASSESSORS 💮 ELEPHANTS Grey Mystery Smoke Chiang Lek

Rain

+ ADD ELEPHANT

#### **Grey Mystery**

## (3344556) 🧪 EDIT

Sex	Genus	Date Born
Female	Asian	1/5/1986 (Estimated
Date Entered Captivity		Date Arrived At Current
1/5/1992 (Estir	mated)	10/3/1998 (Known)
Date of Death / D	)eparture	Additional Info About D
DD/MM/YYYY		N/A
Related Elepl	nants At Your Co	ollection
Daughter	Son	
Chiang Lek	Rain	

#### ♥ VIEW SUMMARY OF HEALTH

#### **Assessment Results**

Enter more assessment data to view the assessment results

d)

Institution

Departure

#### ASSESSMENTS

All sections should be completed within one week (7 consecutive days)

#### Section A

**Qualitative Behavioural Assessment** 

#### ✓ COMPLETE

#### Section B

Daytime activity

#### ENTER ASSESSMENT

#### Section C

Night-time activity



## **Grey Mystery**

Sex	Genus	Date Born
Female	Asian	1/5/1986 (Esti
Date Entered Captivity		Date Arrived At C
1/5/1992 (Estimated)		10/3/1998 (Kn
Date of Death / Departure		Additional Info Al
DD/MM/YYYY		N/A

### **Related Elephants At Your Collection**

## ♥ VIEW SUMMARY OF HEALTH

## **Assessment Results**

+ ADD ELEPHANT





## stimated)

Current Institutio

(nown)

About Departure

### ASSESSMENTS

All sections should be completed within one week (7 consecutive days)

## **Section A**

Qualitative Behavioural Assessment

## ENTER ASSESSMENT

## Section B

Daytime activity

## ENTER ASSESSMENT

## Section C

∰ ELEPHANTS	& assessors
Mary Phillips	
Joseph Timpson	

## Mary Phillips

Title / Role	Email Address	Phon
Head Keeper	mphillips@gmail.com	0771
No. of Years Working At Institution	No. of Years Working With Elephants	
3 years	16 years	



/ EDIT

ne Number

12345678

## G ELEPHANTS ⊗ ASSESSORS

Grey Mystery

Smoke

## **Grey Mystery**

(33445... 🖍 EDIT

Sex	Genus	Date Born
Female	Asian	1/5/1986 (Es
Date Entered 0	Captivity	Date Arrived At
1/5/1992 (Estimated)		10/3/1998 (K
Date of Death / Departure		Additional Info
DD/MM/YYY	ΥY	N/A

### **Related Elephants At Your Collection**

## ♥ VIEW SUMMARY OF HEALTH

## **Assessment Results**

+ ADD ELEPHANT

## stimated)

t Current Institutic

Known)

About Departure

## ASSESSMENTS

All sections should be completed within one week (7 consecutive days)

E

£

## **Section A**

Qualitative Behavioural Assessment

## ENTER ASSESSMENT

## **Section B**

Daytime activity

## ENTER ASSESSMENT

## Section C

## G ELEPHANTS ⊗ ASSESSORS

Grey Mystery

Smoke

## **Grey Mystery**

(33445... / EDIT

Sex	Genus	Date Born
Female	Asian	1/5/1986 (Es
Date Entered 0	Captivity	Date Arrived At
1/5/1992 (Estimated)		10/3/1998 (K
Date of Death / Departure		Additional Info
DD/MM/YYY	ΥY	N/A

### **Related Elephants At Your Collection**

## ♥ VIEW SUMMARY OF HEALTH

## **Assessment Results**

+ ADD ELEPHANT

## stimated)

t Current Institutic

Known)

About Departure

ASSESSMENTS

All sections should be completed within one week (7 consecutive days)

E

£

## **Section A**

Qualitative Behavioural Assessment

## ENTER ASSESSMENT

## **Section B**

Daytime activity

## ENTER ASSESSMENT

## Section C

## G ELEPHANTS ⊗ ASSESSORS

Grey Mystery

Smoke

## **Grey Mystery**

(33445... 🖍 EDIT

Sex	Genus	Date Born
Female	Asian	1/5/1986 (Es
Date Entered 0	Captivity	Date Arrived At
1/5/1992 (Estimated)		10/3/1998 (K
Date of Death / Departure		Additional Info
DD/MM/YYY	ΥY	N/A

### **Related Elephants At Your Collection**

## ♥ VIEW SUMMARY OF HEALTH

## **Assessment Results**

+ ADD ELEPHANT

## stimated)

t Current Institutic

Known)

About Departure

## ASSESSMENTS

All sections should be completed within one week (7 consecutive days)

E

1

## **Section A**

Qualitative Behavioural Assessment

## ENTER ASSESSMENT

## **Section B**

Daytime activity

## ENTER ASSESSMENT

## Section C

## ↔ ELEPHANTS & ASSESSORS

Grey Mystery

Smoke

## **Grey Mystery**

Sex	Genus	Date Born
Female	Asian	1/5/1986 (Es
Date Entered Captivity		Date Arrived At
1/5/1992 (Estimated)		10/3/1998 (K
Date of Death / Departure		Additional Info
DD/MM/YYYY		N/A

### **Related Elephants At Your Collection**

## ♥ VIEW SUMMARY OF HEALTH

## **Assessment Results**

+ ADD ELEPHANT

## (33445... / EDIT

## stimated)

Current Institutio

Known)

About Departure

## ASSESSMENTS

All sections should be completed within one week (7 consecutive days)

E

1

## Section A

Qualitative Behavioural Assessment

## ENTER ASSESSMENT

## Section B

Daytime activity

## ENTER ASSESSMENT

## Section C

## G ELEPHANTS ⊗ ASSESSORS

Grey Mystery

Smoke

## **Grey Mystery**

(33445... / EDIT

Sex	Genus	Date Born
Female	Asian	1/5/1986
Date Entered Captivity		Date Arrive
1/5/1992 (Estimated)		10/3/199
Date of Death / Departure		Additional
DD/MM/YYYY		N/A

**Related Elephants At Your Collection** 

## ♥ VIEW SUMMARY OF HEALTH

## **Assessment Results**

+ ADD ELEPHANT

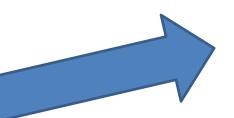


## 1986 (Estimated)

Arrived At Current Institutic

/1998 (Known)

ional Info About Departure



## ASSESSMENTS

All sections should be completed within one week (7 consecutive days)

## **Section A**

Qualitative Behavioural Assessment

## ENTER ASSESSMENT

## **Section B**

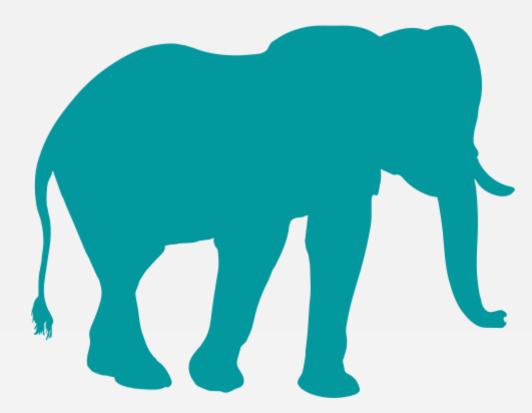
Daytime activity

## ENTER ASSESSMENT

## Section C

# **Elephant Welfare Project** Elephant Behavioural and Welfare Tool

If you still have questions, please contact us at <u>EWP@nottingham.ac.uk</u>



www.elephantwelfareproject.org



