

TETRA 2.0 – User Guide

DATA VISUALISATION SYSTEM

Version 2.0
| FEBRUARY 2017

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Introduction

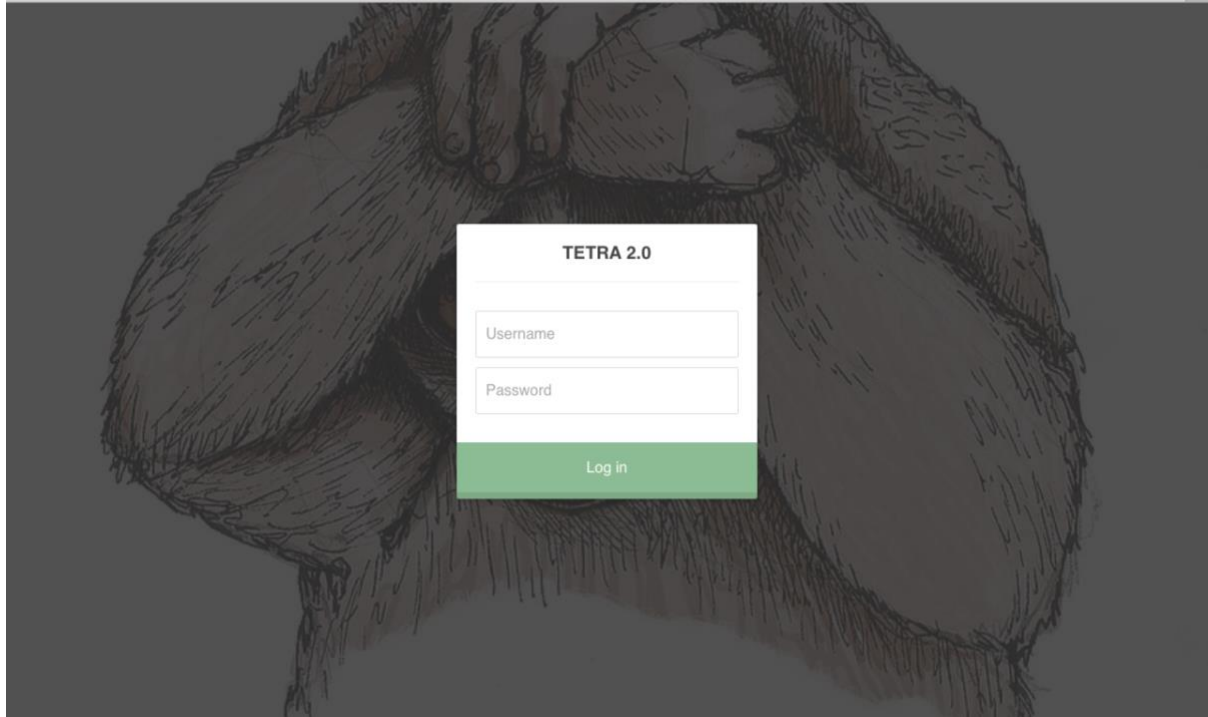
Tetra, a web-based database and data visualisation system for Animal Conservation Project, is a website developed to enable researchers to store and visualise patterns and information collected from the animal under study.

The purpose of this user guide is to make the users aware of the variety of features available within the new version of Tetra. The guide will cover Map View, Graph View, Uploading Data and Adding animal. The user is required to have basic knowledge of operating computers and partial knowledge of the data being utilised by the LFP team.

Logging In

Prerequisite

The user must enter a valid **Username** and **Password** provided by system administrator.



Process

1. Enter the **Username** and **Password**, where password text field is case-sensitive
2. Click **Log in** button

Result

Successful

Successful login credentials will redirect the user to GUI system and open up the **Map Analysis** page. However, the [navigation](#) bar view will vary depending on the administrative rights of the user.

Unsuccessful

Unsuccessful login details will redirect back to the login page.



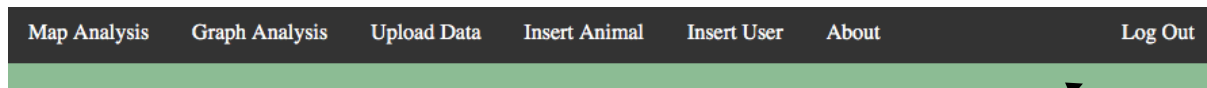
TETRA 2.0 – User Guide

DATA VISUALISATION SYSTEM

Version 2.0

2017 FEBRUARY 2017

Log Out



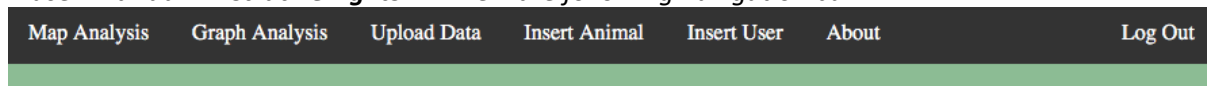
A user can simply log out by clicking on the Log Out button on the top right hand side of the system which will redirect the user to login page

Navigation

A navigation bar can be viewed on top of a system once the user has successfully logged in. A user with administrative rights has been provided extra functionalities such as uploading and deleting data, insertion and deletion of animals and users.

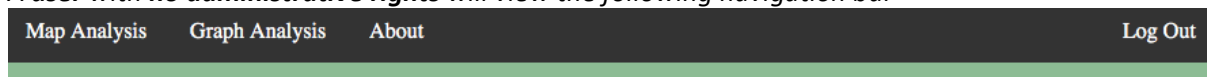
Administrator View

*A user with **administrative rights** will view the following navigation bar*



User View

*A **user** with **no administrative rights** will view the following navigation bar*



Administrative rights can be given to a user when inserting a new user to records, for more information visit [Insert User](#).

Map Analysis

The **Map Analysis** page is used as a homepage, this is where the animal tracks and data collection points can be analysed in depth.

The screenshot shows the 'Map Analysis' page. The top navigation bar includes links for 'Map Analysis', 'Graph Analysis', 'Upload Data', 'Insert Animal', 'Insert User', and 'About', along with a 'Log Out' button. The sidebar on the left contains a search box labeled 'Enter animal initials...' with a 'Search' button. Below this are three checkboxes: 'Marked Trajectories', 'Marker Clustering', and 'Heatmap'. The 'Refine by' section includes 'Date/Time' with 'From' and 'To' date pickers, and 'Altitude' with 'Min' and 'Max' input fields. The 'Animal Details' section has input fields for 'ID:', 'Name:', 'Sex:', 'Age Category:', 'Mother:', and 'Partner:'. At the bottom of the sidebar is a 'Print this page' button. The main area of the page is a large green map.

Map Side Panel

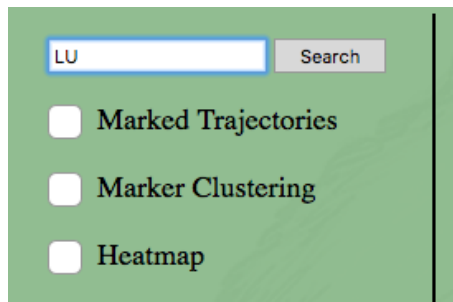
The diagram illustrates the components of the Map Side Panel with the following callouts:

- Search Box:** Enter animal initials here and the click search in order to display trajectory on the map.
- Display Options:** User can select from the following checkbox options to display the animal collected data in different format. If none of the checkbox options is selected, then only lines of trajectories are displayed.
 - Marked Trajectories – Lines with marked data points
 - Marker Clustering – Marked data point only
 - Heatmap – Heatmap of the data points
- Refine by:** The animal data results can also be refined by Date, Time and Altitude. The search system has been made very flexible therefore, the user has the flexibility of selecting multiple refine options simultaneously.
 - Data/Time - Refine search results 'From' or/and 'To' particular date and time
 - Altitude: Refine search results by minimum and/or maximum altitude
- Animal Details:** Upon successful search, the animal details are provided on the bottom of the panel for the convenience of user research
- Print:** Enable the user to print the page with data

Map Display

Line Trajectories

From the [side panel](#), the user must enter animal initials within the search box and click the **Search** button. For example: Enter 'LU' with the text field, which are the initials of the animal by the name of 'Lucu' and then click the **Search** button.



LU Search

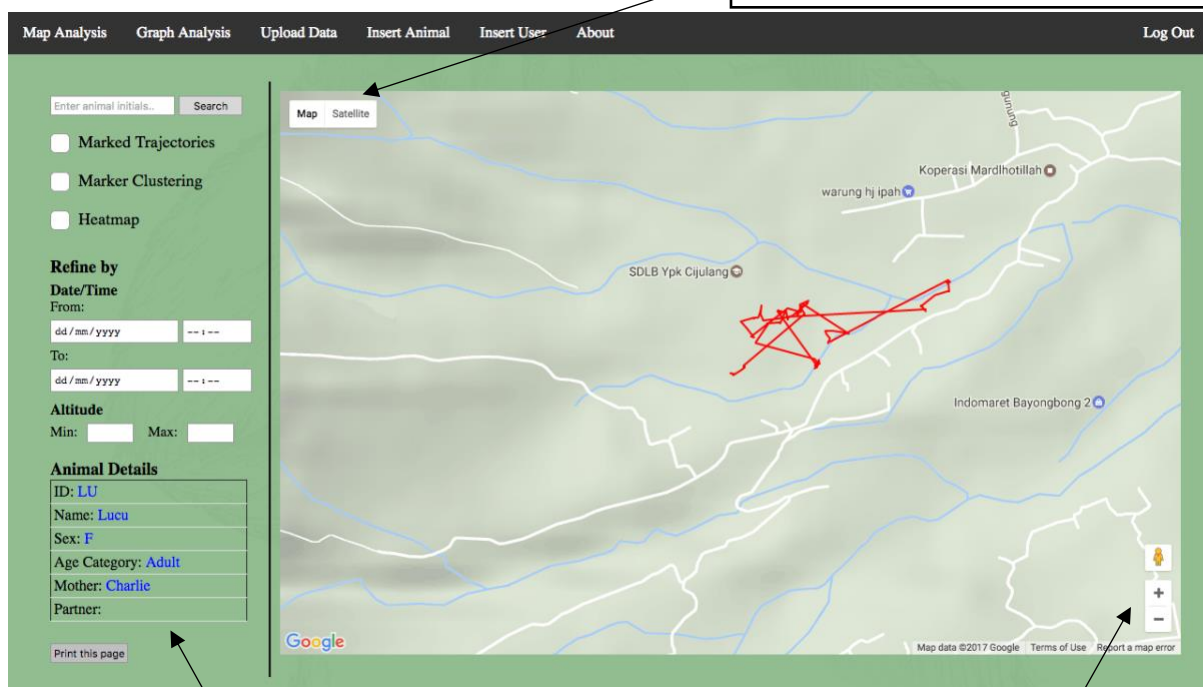
☐ Marked Trajectories

☐ Marker Clustering

☐ Heatmap

This will display line trajectories of the animal 'Lucu' on the Google Map.

Click satellite to view data on satellite display instead.



Map Analysis Graph Analysis Upload Data Insert Animal Insert User About Log Out

Enter animal initials.. Search

☐ Marked Trajectories

☐ Marker Clustering

☐ Heatmap

Refine by

Date/Time

From: dd/mm/yyyy -- 1 -->

To: dd/mm/yyyy -- 1 -->

Altitude

Min: Max:

Animal Details

ID:	LU
Name:	Lucu
Sex:	F
Age Category:	Adult
Mother:	Charlie
Partner:	

Print this page

Map Satellite

warung hj ipah

Koperasi Mardihotillah

SDLB Ypk Cijulang

Indomaret Bayongbong 2

Google

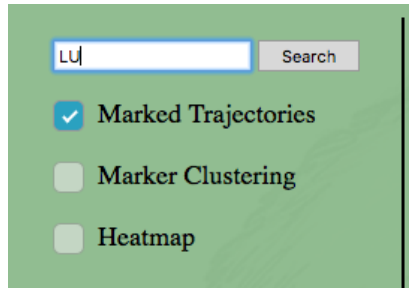
Map data ©2017 Google Terms of Use Report a map error

All of the details related to the searched animal will be displayed within the table.

User may zoom-in or zoom-out on to the Google map integrated with the animal trajectories.

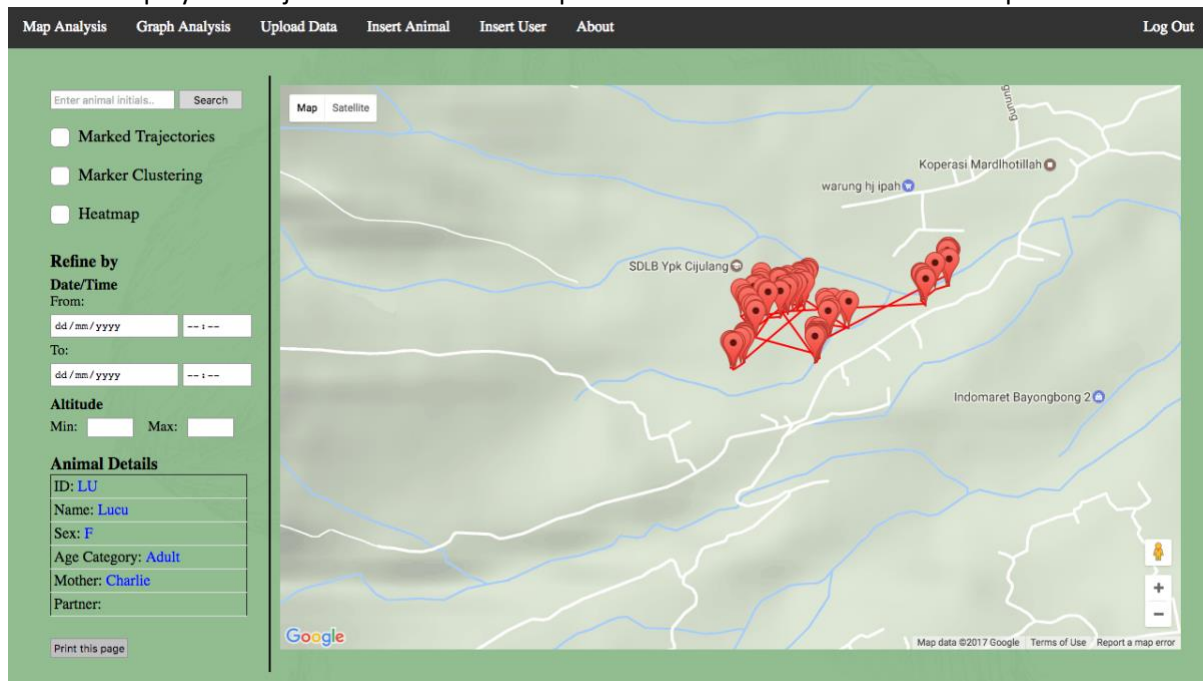
Marked Trajectories

In order to display trajectories with marked data points, the user must enter animal initials and select the 'Marked Trajectories' option. For example: Enter 'LU' within the text field and select the option 'Marked Trajectories' and then click the **Search** button.



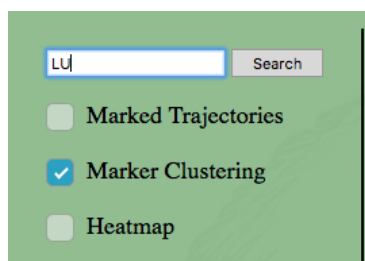
A search interface with a green background. At the top, there is a text input field containing 'LU' and a 'Search' button. Below the input field, there are three radio button options: 'Marked Trajectories' (which is selected), 'Marker Clustering', and 'Heatmap'.

This will display line trajectories with the data points of the animal 'Lucu' on the Map.



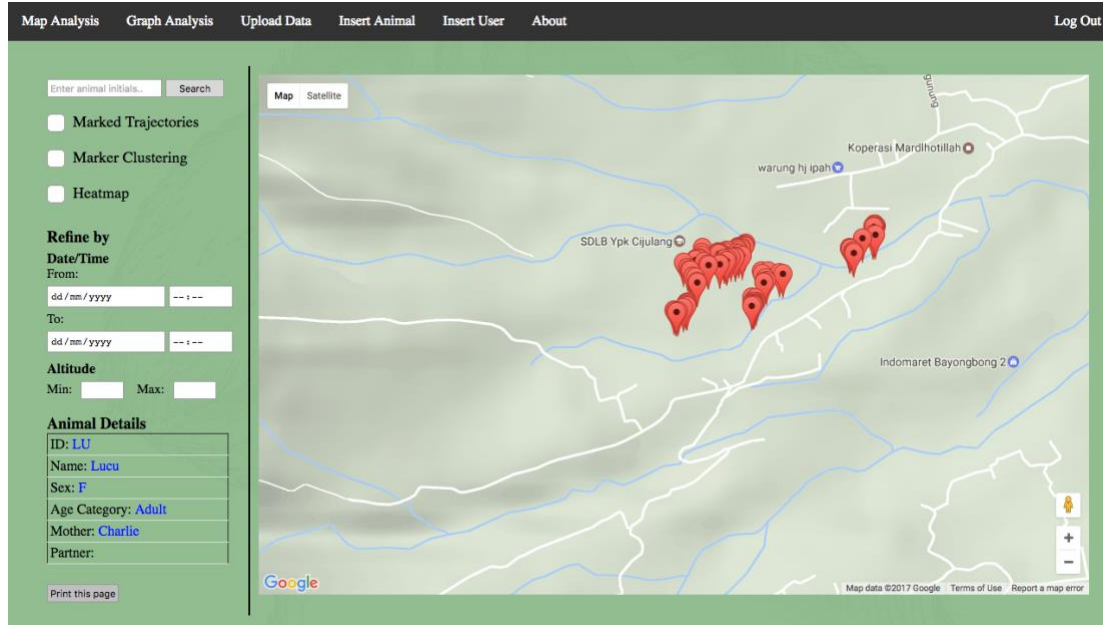
Marker Clustering

To display just marked data points, the user must enter animal initials and select the 'Marker Clustering' option. For example: Enter 'LU' within the text field and select the option 'Marker Clustering' and then click the **Search** button.



A search interface with a green background. At the top, there is a text input field containing 'LU' and a 'Search' button. Below the input field, there are three radio button options: 'Marked Trajectories', 'Marker Clustering' (which is selected), and 'Heatmap'.

This shall display just the data points of the animal as markers on Google map as displayed below.

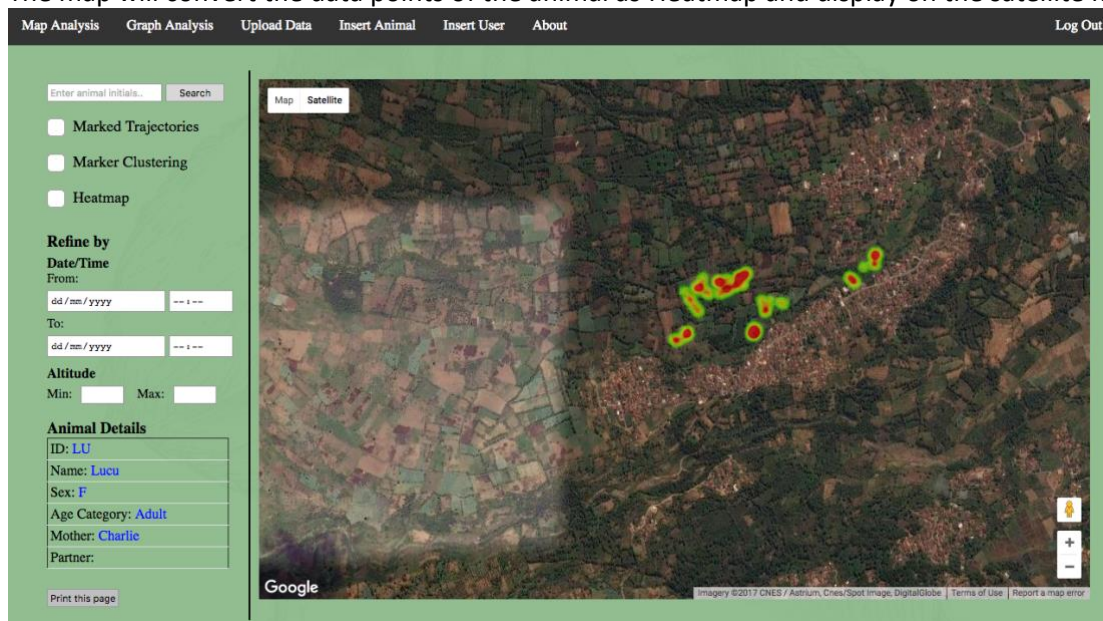


Heatmap

To visualise the animal data as a Heatmap, the user must enter animal initials and check the 'Heatmap' option. For example: Enter 'LU' within the text field and select the option 'Heatmap' and then click the **Search** button.

This close-up shows the search bar with 'LU' entered and the 'Search' button. Below it, the 'Marked Trajectories', 'Marker Clustering', and 'Heatmap' checkboxes are visible, with 'Heatmap' being the selected option.

The map will convert the data points of the animal as Heatmap and display on the satellite map.



Prerequisite

In order to view the data, appropriate GPS location file which is required to be analysed should be uploaded. The user must enter a valid **Animal Initials** which exists within the database system (GPS location and animal data can be inserted by admin user via [Upload](#) and [Insert Animal](#) page respectively).

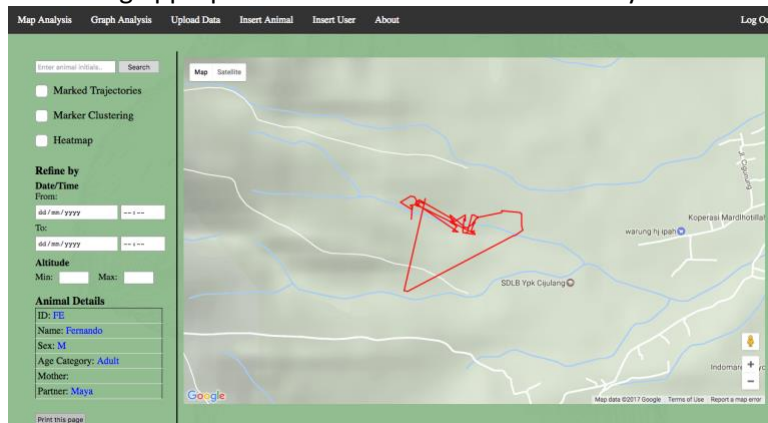
Process

1. Enter animal initials within the [Search Box](#)
2. Select map display option from [Line Trajectories](#), [Marked Trajectories](#), [Marker Cluster](#) or [Heatmap](#).
3. Click [Search](#) button

Result

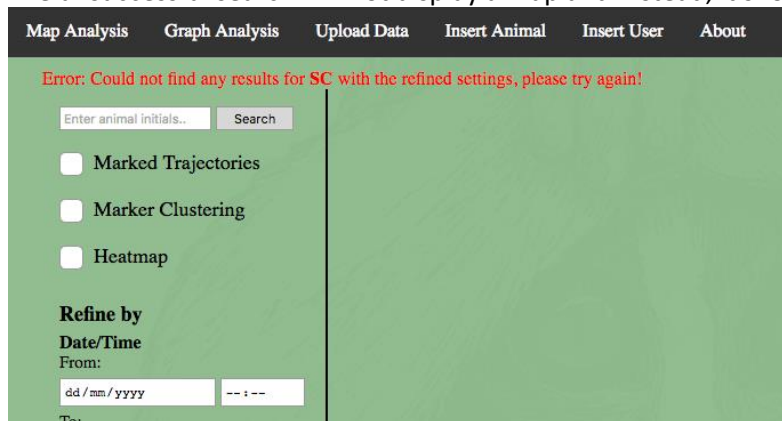
Successful

A successful search will generate a map on the right-hand side of the **Map Analysis** web page, containing appropriate animal data that can be analysed.



Unsuccessful

The unsuccessful search will not display a map and instead, it should display an error message.



Graph Analysis

The **Graph Analysis** page is where different graphs can be generated with the help of data uploaded by the admin users. The graphs can assist the user to carry out a comprehensive analysis of the animal activities.

The screenshot shows the 'Graph Analysis' page with a dark navigation bar at the top containing links: Map Analysis, Graph Analysis, Upload Data, Insert Animal, Insert User, About, and Log Out. The main content area has a green background. On the left, there is a sidebar with the following controls: 'Select Graph Type:' with a dropdown menu showing 'Activity Budgets' and a 'Display' button; 'Refine by' with radio buttons for 'Male' and 'Female'; 'Date' with 'From:' and 'To:' date input fields; and a 'Print this page' button at the bottom. The rest of the page is a large empty green space for the graph.

Graph Side Panel

The diagram shows the 'Graph Side Panel' with callouts explaining its components:

- Display button** – Select the graph type and Click **Display** button to generate the graph on the page.
- Graph Type:** User has an option of visualising from three different type of graphs.
 - Activity Budgets - General activity of the animals
 - Altitude Usage - Altitude travelled by each animal
 - Tree Usage – Tree used by animals
- Refine by:** The graph data results can be refined by animal gender and date. The user has the flexibility of selecting animal gender and date filter simultaneously.
 - Male – Refine search results of male animals only
 - Female - Refine search results of female animal only
 - Date - Refine search results 'From' or/and 'To' particular date
- Print:** Enable the user to print the page with graphs

Graph Display

Activity Budget

In order to display activity budget graph, the user is required to select the default 'Activity Budget' option from the combo-box and click the **Display** button.

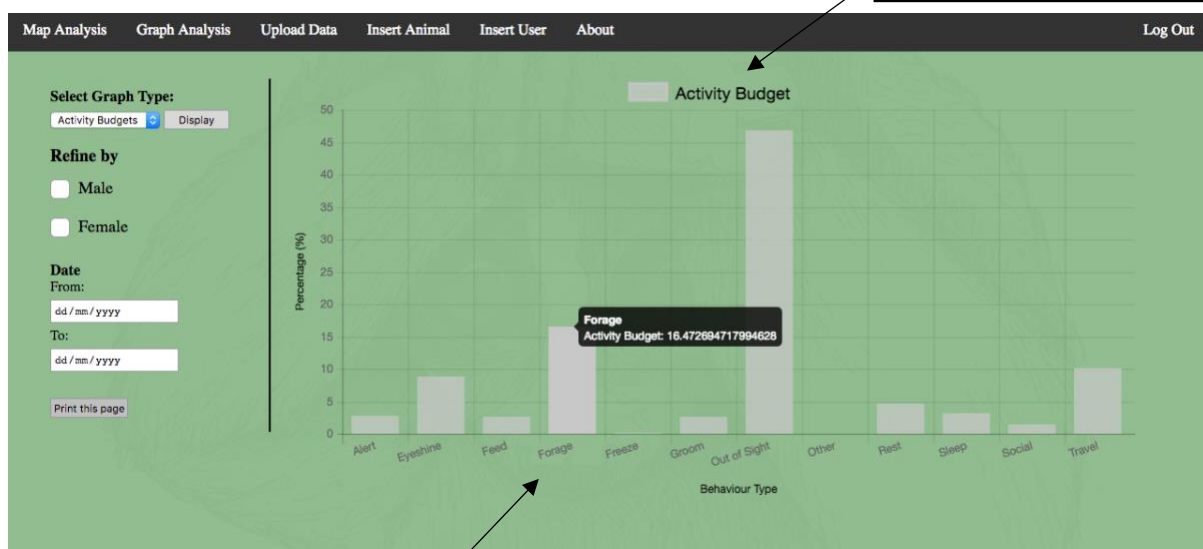
Select Graph Type:

Activity Budgets

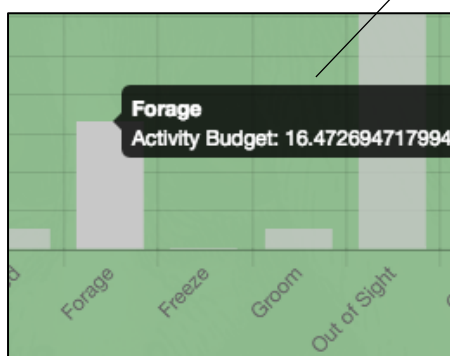
Refine by

☐ Male

This will display the activity budget graph chart, where the animal behaviour type can be analysed. The graph has been generated utilising the data which has uploaded and animals that have been [inserted](#) by the admin.



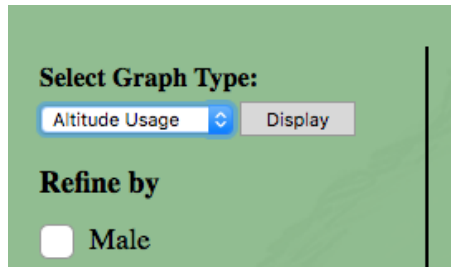
Graph type label title



Percentage of behaviour type can be viewed by hovering the mouse over the bar. For example: 16.47% of the animals spent time foraging.

Altitude Usage

To visualise altitude usage graph, the user is simply required to select the 'Altitude Usage' option from the combo-box and click the **Display** button.



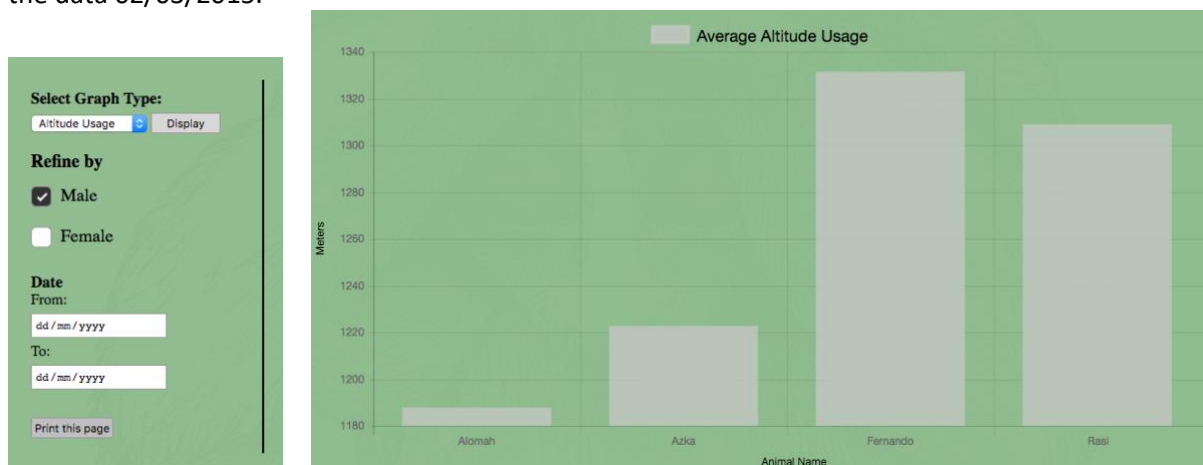
The interface shows a green sidebar with the following controls:

- Select Graph Type:** A dropdown menu set to 'Altitude Usage' and a 'Display' button.
- Refine by:** A section with a radio button selected for 'Male'.

Which should generate a graph chart with the label Average Altitude Usage, where the average altitude usage can be analysed of each animal that has been inserted already through [Insert Animal](#).

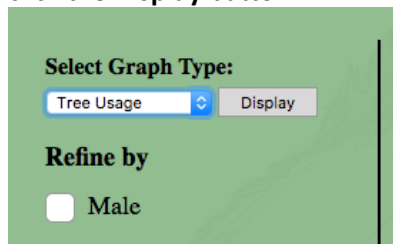


Further filtration can be applied to visualise the appropriate information. For example, Select 'Altitude Usage', then check 'Male', followed on by setting the 'From' date as '02/03/2015', and click **Display** button. This will display a graph of only male animals, with their average altitude usage from the data 02/03/2015.



Tree Usage

To view tree usage graph, the user has to select the 'Altitude Usage' option from the combo-box and click the **Display** button.



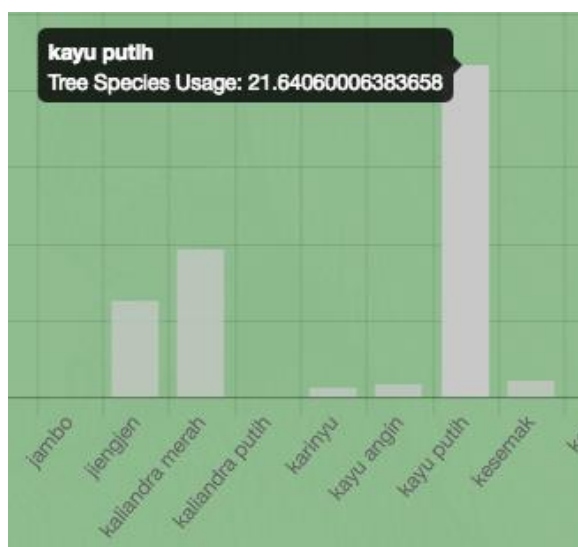
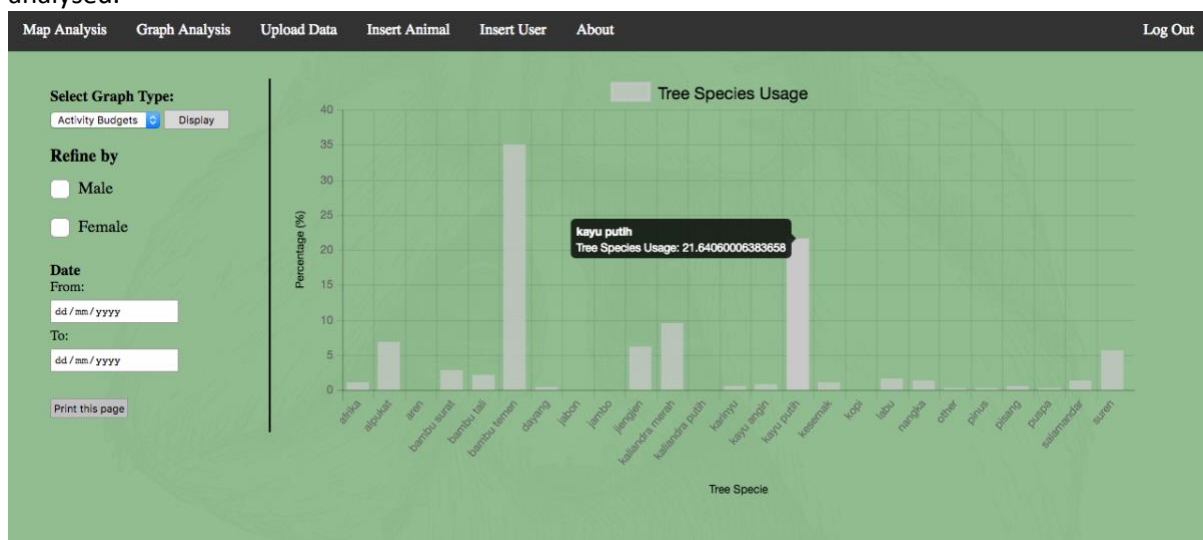
Select Graph Type:

Tree Usage [v] Display

Refine by

☐ Male

This should generate a tree species usage graph chart, where the tree used by the animals can be analysed.



Percentage of Tree Species Usage can be accessed by hovering the mouse on the bar. For example: 21.64% of the animals spent time on Kayu Putih tree.

Prerequisite

In order to view the data, appropriate behaviour file which is required to be analysed should be uploaded beforehand. The user must select a graph type from the combo-box, in order to view the appropriate data, which exists within the database system. ([Behaviour](#) and [animal](#) data can be inserted by admin user via Upload and Insert Animal page respectfully).

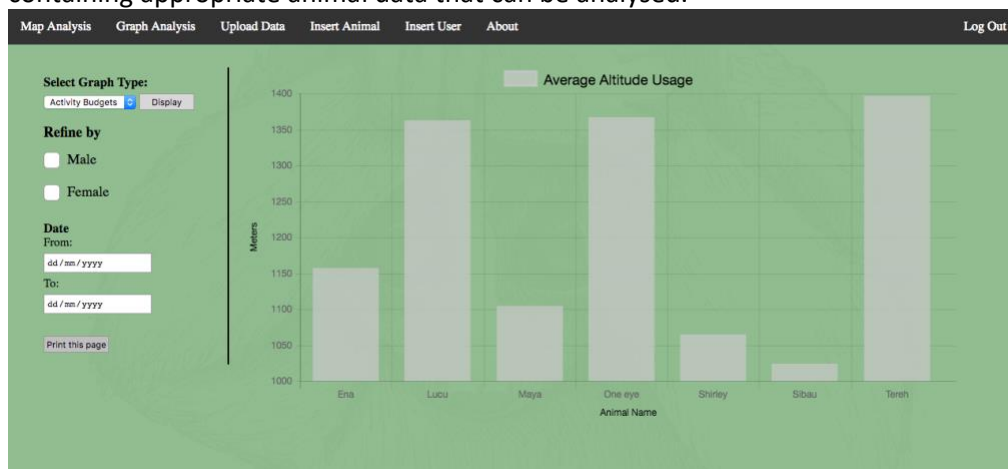
Process

1. Select Graph type from [Activity Budgets](#), [Altitude Usage](#) or [Tree Usage](#)
2. Click [Display](#) button

Result

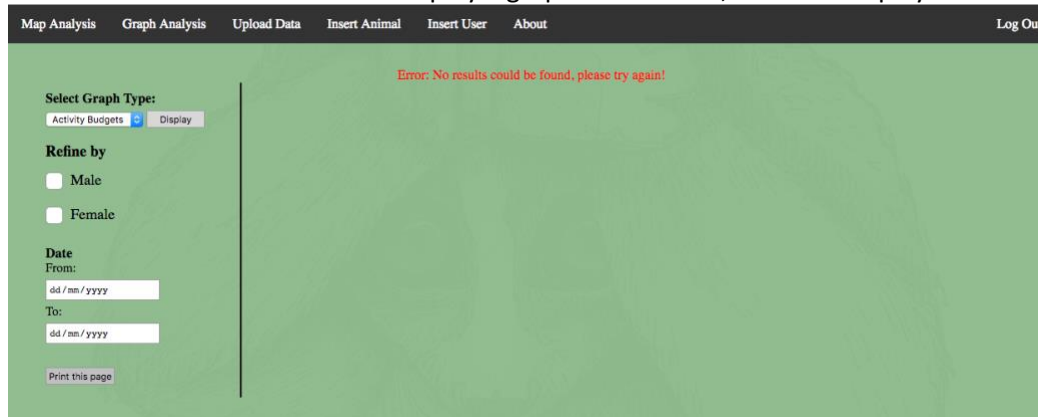
Successful

A successful search will generate a graph on the right-hand side of the **Graph Analysis** web page, containing appropriate animal data that can be analysed.



Unsuccessful

The unsuccessful search will not display a graph and instead, it should display an error message.



In order to utilise the features below, please login with an account that has [Administrative Rights](#) enabled.

Upload Data

The **Upload Data** page enables an administrative user to upload a CSV file containing the animal's behaviour and GPS location data.

The screenshot shows the 'Upload Data' page with two main sections: 'Animal GPS Location Data File' and 'Animal Behaviour Data File'. Each section contains a 'Choose file...' button, a 'Select' button, an 'Upload' button, and a 'Delete All' button. Callouts provide the following instructions:

- Select** – Select the CSV file to upload
- Upload** – Click button to upload the file selected
- Delete All** – Deletes all the records that have previously been uploaded by the admin user.

GPS Data

Prerequisite

In order to upload the GPS data to the server, the user is required to have administrative rights, and a CSV file containing appropriate data. The CSV file is required to be in the exact format and order as displayed in [Format](#) section below.

GPS CSV Format

Exact order and data format of the file required

A	B	C	D	E	F	G	H
Latitude	Longitude	Name	Altitude	Description	Symbol	Date	Time
-7.2793126	107.761866	SH002 KR4	1465	SH002 KR4	Furbearer	01/12/2015	00:01:00
-7.2792945	107.761865	SH003 KR4	1469	SH003 KR4	Furbearer	01/12/2015	00:17:15
-7.2793307	107.761866	SH004 KR4	1470	SH004 KR4	Furbearer	01/12/2015	00:31:41
-7.2793487	107.761866	SH005 KR4	1471	SH005 KR4	Furbearer	01/12/2015	00:46:36
-7.2793573	107.761868	SH006 KR4	1470	SH006 KR4	Furbearer	01/12/2015	01:01:34

Location data required in latitude and longitude format

Column	Heading	Mandatory	Format Rules	Example
1	Latitude	True	Range -90.00000000 to 90.00000000	-5.27931258
2	Longitude	True	Range -180.00000000 to 180.00000000	104.1318654
3	Name	True	SH002 KR4 - where SH must be the animal initials	SH002 KR4
4	Altitude	False	Numerical values with four decimal places Can be left empty but recommended to be inserted in order to visualise accurate Altitude data	1450.0000 1450
5	Description	False	Can be left empty	
6	Symbol	False	Text - Description of the animal symbol Can be left empty	Furbearer
7	Date	True	DD/MM/YYYY, where D is the day, M is the month and Y is the year	20/02/2017
8	Time	True	24-hour format - HH/MM/SS, where H is the hours, M is the minutes and S is the seconds	23:10:56 00:00:00

Process

1. Click the [Select](#) Button
2. Select the [GPS Location](#) CSV file
3. Click [Upload](#) Button

Result

Successful

Successful upload to the server will display a message on the web page as “Successfully imported **GPS location** records!”.

Unsuccessful

Unsuccessful upload will display an error message with appropriate information.

Behaviour Data

Prerequisite

In order to upload the behaviour data to the server, the user is required to have [administrative rights](#), and a CSV file containing appropriate data. The CSV file is required to be in the exact format and order as displayed in [Format](#) section below.

Behaviour CSV Format

Exact order and data format of the file required

	A	B	C	D	E	F	G	H	I	J
1	Observation	Date	Date2	Year	Total Hours of Observation	Start.time	End.time	Time of data	Observer	Tracker.Guide
2	20449	01-džc-15	01/12/2015	2015		05:10	17:50	23:00	17:50 dan	adin
3	20450	01-džc-15	01/12/2015	2015	NA		17:50	23:00	17:55 dan	adin

K	L	M	N	O	P	Q	R	S	T
Assistant.Other	Loris Id	Individual Name	Age	Sex	Mother of ID	GPS Label	Altitude (M)	Behaviour	Activity
VA	al	alomah	adult	m	one_eye	NA	NA	os	NA
VA	al	alomah	adult	m	one_eye	NA	NA	es	ac

U	V	W	X	Y	Z	AA	AB
Posture.Locomotion	Feeding.Amount	Feeding.Branch	Feeding.Item	Feeding.Technique	Position.in.tree	Animal.height (m)	Tree.height (m)
NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	12	13

AC	AD	AE	AF	AG	AH	AI	AJ
Tree.species	Substrate.size	Substrate.type	No.substrates.used	Connectivity	Social.Behaviour	Partner.1 (Loris ID)	Partner.2 (Loris ID)
NA	NA	NA	NA	NA	NA	NA	NA
bambu_temen	NA	tk	NA	NA	NA	NA	NA

AK	AL	AM	AN	AO	AP	AQ	AR	AS
Distance.to.Observer (m)	Distance.to.partner (m)	Distance.to.partner.2 (m)	Vocalisation	Terrestrial.Distance (m)	Terrestrial.Duration	Rain	Rain.24.h	Fog
NA	NA	3	NA	NA	NA	0	0	NA
NA	NA	NA	NA	NA	NA	0	3	0

AT	AU	AV	AW	
Cloud	Moon.Phase	Moon.Visible	Wind	Comments
0	NA	NA	10	NA
10	NA	NA	0	NA

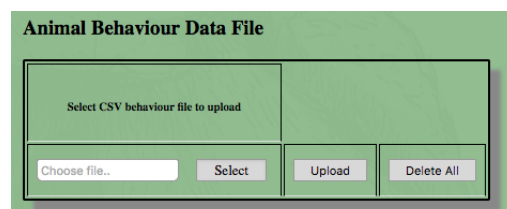
Column	Heading	Mandatory	Format Rules	Example
1	Observation	True	Numerical value containing observation ID	20400
2	Date	<i>False</i>	<i>Can be left empty</i>	
3	Date2	True	DD/MM/YYYY, where D is the day, M is the month and Y is the year	20/02/2017
4	Year	<i>False</i>	<i>Can be left empty</i>	
5	Total Hours of Observation	<i>False</i>	<i>Can be left empty</i>	
6	Start Time	<i>False</i>	<i>Can be left empty</i>	
7	End Time	<i>False</i>	<i>Can be left empty</i>	

8	Time of Data	True	24-hour format - HH/MM/SS, where H is the hours, M is the minutes and S is the seconds	23:10:56 00:00:00																										
9	Observer	False	Can be left empty																											
10	Tracker Guide	False	Can be left empty																											
11	Assistant Other	False	Can be left empty																											
12	Loris ID	True	ID is also known as animal initials which have a string length of 2 Animal must already exist within the system <ul style="list-style-type: none">Animal can be added via Insert AnimalID should match the initials provided in the GPS	SH LU AZ																										
14	Individual Name	False	Can be left empty																											
14	Age	False	Can be left empty																											
15	Sex	False	Can be left empty																											
16	Mother of ID	False	Can be left empty																											
17	GPS Label	False	Can be left empty																											
18	Altitude		Meters																											
19	Behaviour	True	Must match the following string value of behaviour ID, which has string length of 2 <table><tr><th>Behaviour ID</th><th>Behaviour Details</th></tr><tr><td>al</td><td>Alert</td></tr><tr><td>fe</td><td>Feed</td></tr><tr><td>fo</td><td>Forage</td></tr><tr><td>fr</td><td>Freeze</td></tr><tr><td>gr</td><td>Groom</td></tr><tr><td>re</td><td>Rest</td></tr><tr><td>sl</td><td>Sleep</td></tr><tr><td>so</td><td>Social</td></tr><tr><td>tr</td><td>Travel</td></tr><tr><td>ot</td><td>Other</td></tr><tr><td>os</td><td>Out of Sight</td></tr><tr><td>es</td><td>Eyeshine</td></tr></table>	Behaviour ID	Behaviour Details	al	Alert	fe	Feed	fo	Forage	fr	Freeze	gr	Groom	re	Rest	sl	Sleep	so	Social	tr	Travel	ot	Other	os	Out of Sight	es	Eyeshine	al fo tr es
Behaviour ID	Behaviour Details																													
al	Alert																													
fe	Feed																													
fo	Forage																													
fr	Freeze																													
gr	Groom																													
re	Rest																													
sl	Sleep																													
so	Social																													
tr	Travel																													
ot	Other																													
os	Out of Sight																													
es	Eyeshine																													
20	Activity	False	Can be left empty																											
21	Posture Locomotion	False	String length of 2 Can be left empty	si																										
22	Feeding Amount	False	Can be left empty																											
23	Feeding Branch	False	Can be left empty																											
24	Feeding Item	False	Can be left empty																											
25	Feeding Technique	False	Can be left empty																											
26	Position In Tree	False	Can be left empty																											
27	Animal Height	False	Range 0:100 meters Can be left empty	40																										

28	Tree Height	False	Range 0:100 meters Can be left empty	13
29	Tree Species	False	Text value separated by underscore <i>Can be left empty</i> but recommended to be inserted in order to visualise accurate Tree Usage data	bambu_tem en
30	<i>Substrate Size</i>	<i>False</i>	<i>Can be left empty</i>	
31	<i>Substrate Type</i>	<i>False</i>	<i>Can be left empty</i>	
32	<i>No Substrates Used</i>	<i>False</i>	<i>Can be left empty</i>	
33	<i>Connectivity</i>	<i>False</i>	<i>Can be left empty</i>	
34	Social Behaviour	False	String length of 2 Can be left empty	fw
35	<i>Partner 1 ID</i>	<i>False</i>	<i>Can be left empty</i>	
36	<i>Partner 2 ID</i>	<i>False</i>	<i>Can be left empty</i>	
37	<i>Distance to Observer</i>	<i>False</i>	<i>Can be left empty - Meters</i>	
38	<i>Distance to Partner 1</i>	<i>False</i>	<i>Can be left empty - Meters</i>	
39	<i>Distance to Partner 2</i>	<i>False</i>	<i>Can be left empty - Meters</i>	
40	<i>Vocalisation</i>	<i>False</i>	<i>Can be left empty - Meters</i>	
41	<i>Terrestrial Distance</i>	<i>False</i>	<i>Can be left empty - Meters</i>	
42	<i>Terrestrial Duration</i>	<i>False</i>	<i>Can be left empty</i>	
43	<i>Rain</i>	<i>False</i>	<i>Can be left empty</i>	
44	<i>Rain 24h</i>	<i>False</i>	<i>Can be left empty</i>	
45	<i>Fog</i>	<i>False</i>	<i>Can be left empty</i>	
46	<i>Cloud</i>	<i>False</i>	<i>Can be left empty</i>	
47	<i>Moon Phase</i>	<i>False</i>	<i>Can be left empty</i>	
48	<i>Moon Visible</i>	<i>False</i>	<i>Can be left empty</i>	
49	<i>Wind</i>	<i>False</i>	<i>Can be left empty</i>	
50	<i>Comment</i>	<i>False</i>	<i>Can be left empty</i>	

Process

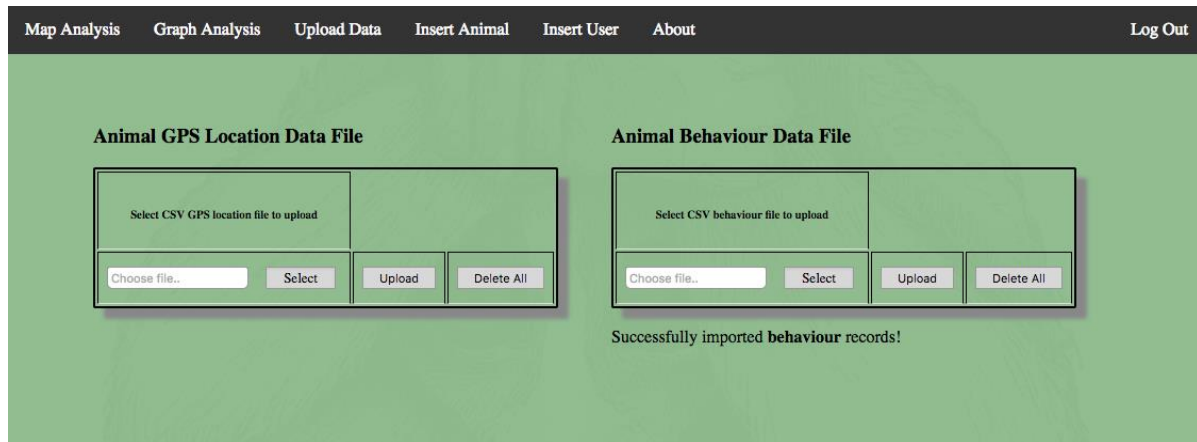
1. Click the [Select](#) Button
2. Select the [Behaviour](#) CSV file
3. Click [Upload](#) Button



Result

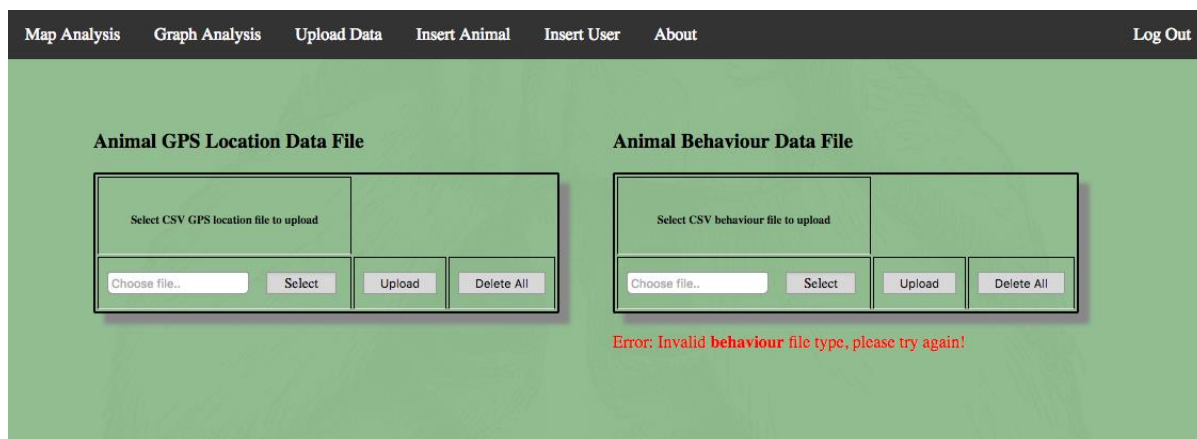
Successful

Successful upload to the server will display a message on the web page as “Successfully imported **Behaviour** records!”.



Unsuccessful

Unsuccessful upload will display an error message with appropriate information.



Insert Animal

Prerequisite

In order to insert a new animal to the server, the user is required to have [administrative rights](#) and must enter valid animal data that can be inserted via forms. By inserting an animal to the server will enable the user to carry out [map](#) and [graph](#) analysis of the particular animal.

The screenshot shows a web application interface for inserting a new animal. The top navigation bar includes links for Map Analysis, Graph Analysis, Upload Data, Insert Animal, Insert User, About, and Log Out. The main content area has a green background with a faint map of Africa. A modal form titled "Insert New Animal" is displayed, containing the following fields: Initials (Animal ID), Name (Animal Name), Sex (radio buttons for Male, Female, Unknown), Age Category (dropdown menu with 'Adult' selected), Status (dropdown menu with 'Collared' selected), Mother (Mother Name), and Social Partner (Partner Name). At the bottom of the form are 'Add' and 'Delete' buttons.

Data Format

Labels	Mandatory	Format Rules	Example
Initials	True	Text - Animal initials also known as Animal ID, which usually has a string length of 2. The ID is usually extracted from the animal's name.	da
Name	True	Text – Name that was given to the animal	dave
Sex	True	Sex of the animal	Male
Age Category	True	Age category of the animal	Adult
Mother	False	Text – Name of animal’s mother	maya
Social Partner	False	Text – Name of animal’s social partner	tereh

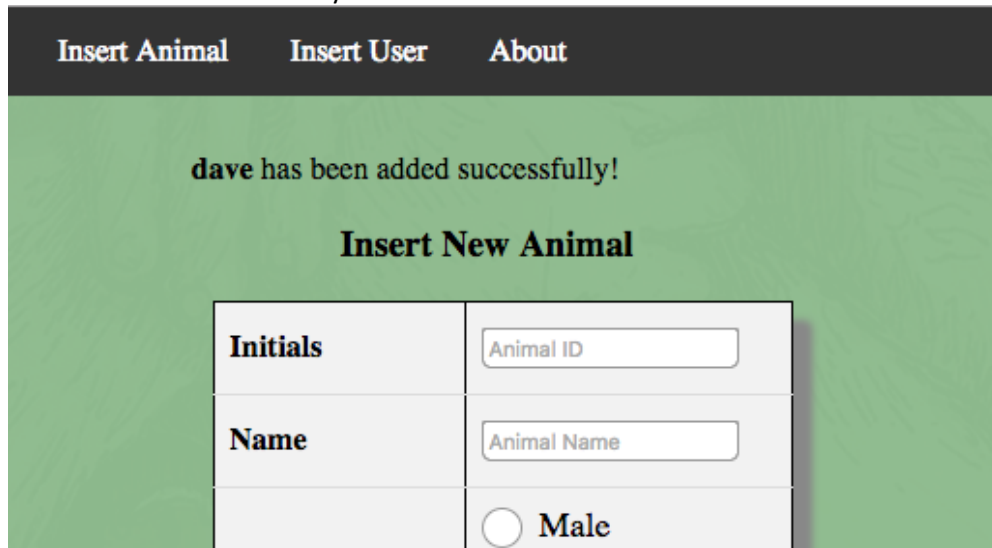
Process

1. Enter **Initials** and **Name** of the animal
2. Select animal sex
3. Select animal age category from the **Age Category** combo-box
4. Option – Enter **Mother** name and **Social Partner** name
5. Click **Add** button

Result

Successful

Successful insertion of the animal to the database will display a message on the web page as “**dave** has been added successfully!”.

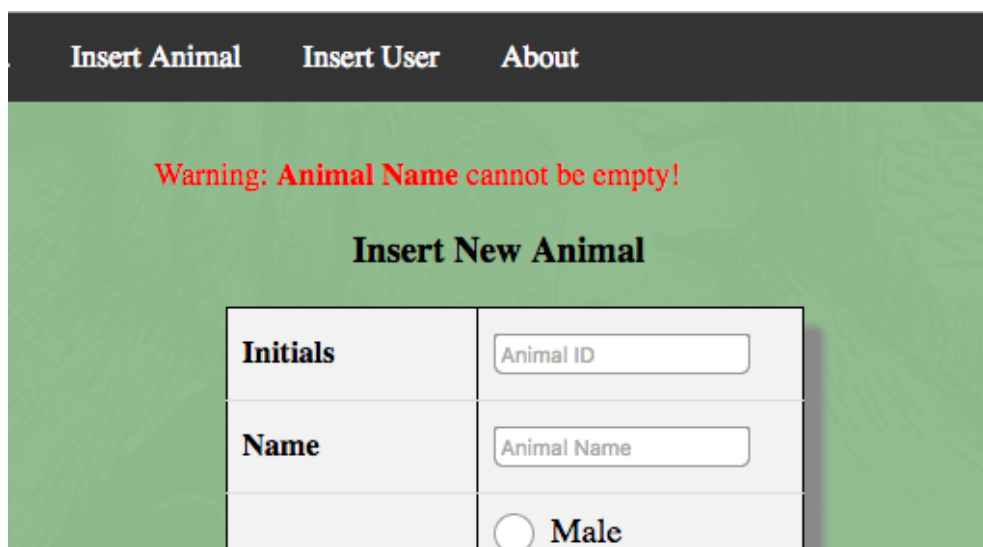


The screenshot shows a web application interface with a dark header containing three links: "Insert Animal", "Insert User", and "About". The main content area has a green background and displays the message "dave has been added successfully!". Below this message is the title "Insert New Animal" and a form with three rows. The first row has a label "Initials" and a text input field containing "Animal ID". The second row has a label "Name" and a text input field containing "Animal Name". The third row has a radio button and the label "Male".

Initials	<input type="text" value="Animal ID"/>
Name	<input type="text" value="Animal Name"/>
	<input type="radio"/> Male

Unsuccessful

Unsuccessful upload will display an error message with appropriate information.



The screenshot shows the same web application interface as the successful case, but with an error message. The header and "Insert New Animal" title are the same. However, the message "Warning: Animal Name cannot be empty!" is displayed in red text above the form. The form itself is identical to the one in the successful case, with labels "Initials" and "Name", and a radio button for "Male".

Initials	<input type="text" value="Animal ID"/>
Name	<input type="text" value="Animal Name"/>
	<input type="radio"/> Male

Delete Animal

Prerequisite

In order to delete an animal to the server, the user is required to have [administrative rights](#) and must insert valid animal **Initials** / Animal ID.

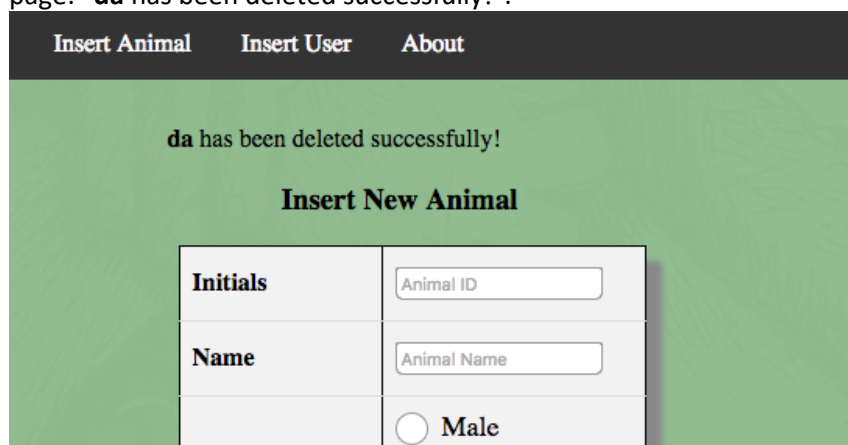
Process

1. Enter animal **Initials**
2. Click **Delete** button

Result

Successful

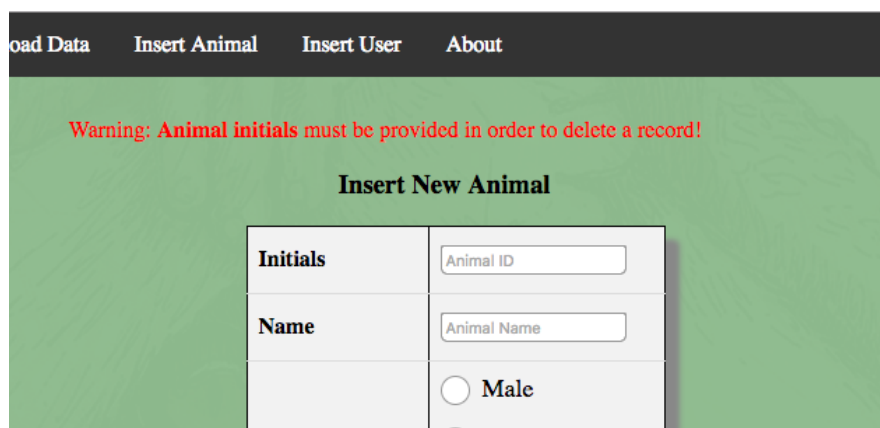
Successful deletion of the animal from the database will display the following message on the web page: “**da** has been deleted successfully!”.



The screenshot shows a web application interface with a dark navigation bar at the top containing the links "Insert Animal", "Insert User", and "About". The main content area has a green background and displays the message "da has been deleted successfully!". Below this message is the heading "Insert New Animal". Under the heading is a form with three rows: the first row has a label "Initials" and a text input field with the placeholder "Animal ID"; the second row has a label "Name" and a text input field with the placeholder "Animal Name"; the third row has a radio button followed by the label "Male".

Unsuccessful

Unsuccessful upload will display an error message with appropriate information.



The screenshot shows the same web application interface as the previous one, but with an additional red warning message at the top of the green content area: "Warning: Animal initials must be provided in order to delete a record!". The "Insert New Animal" form is still visible below the message.

Insert User

Prerequisite

To insert a new user that can utilise the Tetra 2.0 system, the administrative user is required to enter a unique username and appropriate password.

The screenshot shows the 'Insert New User' form within the Tetra 2.0 application. The top navigation bar includes links for 'Map Analysis', 'Graph Analysis', 'Upload Data', 'Insert Animal', 'Insert User', 'About', and a 'Log Out' button. The form itself is titled 'Insert New User' and contains three main input sections: 'Account Username' with a text field labeled 'Username', 'Account Password' with a text field labeled 'Password', and 'Administrative Rights' with a checkbox labeled 'Enable'. At the bottom of the form are two buttons: 'Create' and 'Delete'.

Process

1. Enter **Username** and **Password**
2. Check enable to provide user with **Administrative Right**
3. Click **Create** button

Result

Successful

Successful insertion of the animal to the database will display a message on the web page as "lfp_admin has been added successfully!".

This screenshot shows the 'Insert New User' form after a successful insertion. A message at the top of the form area states 'lfp_admin has been added successfully!'. The form title 'Insert New User' is still visible. The 'Account Username' field is now populated with the text 'lfp_admin'. The 'Account Password' field is empty. The 'Administrative Rights' checkbox is checked. The 'Create' and 'Delete' buttons are still present at the bottom.

Unsuccessful

Unsuccessful upload will display an error message with appropriate information.

This screenshot shows the 'Insert New User' form with an error message displayed at the top: 'Warning: Account Username cannot be empty and must be unique, please try again!'. The form title 'Insert New User' is visible. The 'Account Username' field is empty. The 'Account Password' field is populated with the text 'password'. The 'Administrative Rights' checkbox is checked. The 'Create' and 'Delete' buttons are still present at the bottom.

Delete User

Prerequisite

In order to delete a user from the server, the administrative user must insert valid **Account Username**.

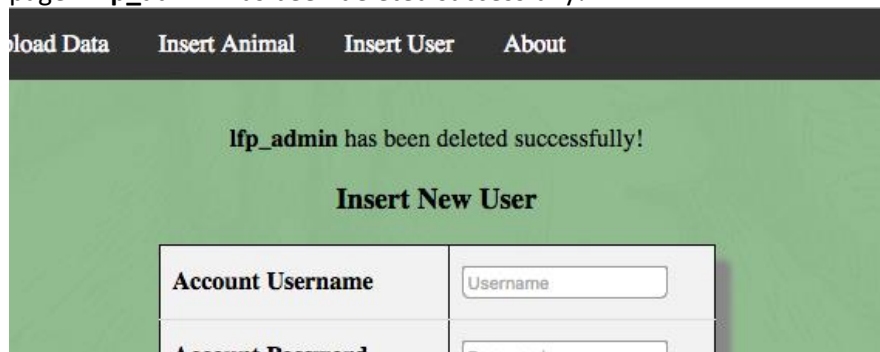
Process

1. Enter animal **Username**
2. Click **Delete** button

Result

Successful

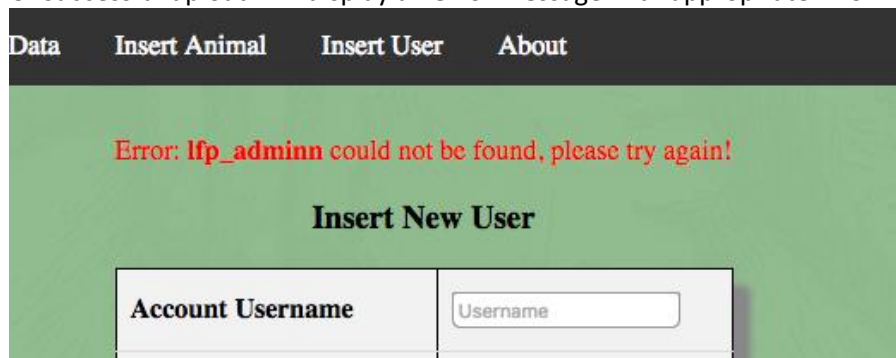
Successful deletion of the user from the database will display the following message on the web page: “**lfp_admin** has been deleted successfully!”.



The screenshot shows a web application interface with a dark navigation bar at the top containing links: "load Data", "Insert Animal", "Insert User", and "About". The main content area has a green background and displays the message "lfp_admin has been deleted successfully!" in black text. Below the message is the heading "Insert New User". Under this heading is a form with two input fields: "Account Username" with a text input containing "Username", and "Account Password" with a password input.

Unsuccessful

Unsuccessful upload will display an error message with appropriate information.



The screenshot shows the same web application interface as the successful case. The navigation bar and "Insert New User" form are visible. However, the message displayed on the green background is "Error: lfp_adminnn could not be found, please try again!" in red text.