
Wildlife Enforcement Monitoring System

User Manual

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type	User Manual
date	July 07, 2011
version	Version 1-1



About this Document

This document is the User Manual of the Wildlife Enforcement Monitoring System (WEMS) database. The aim of this report is to provide guidelines for using the WEMS database management software, including descriptions of the deployment components and a possible deployment environment.

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Abbreviations

Document Location

Revision History

Date	Changes
18/05/2011	Creation of document
07/06/2011	Updated, add description about data sharing policy

Distribution

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Summary

1. Introduction

Wildlife Enforcement Monitoring System is a GIS based model which will help in monitoring the effectiveness of enforcement and compliance of wildlife law at a regional level. The purpose of WEMS project is to monitor trafficking and illegal wildlife crime through a joint effort carried out through United Nations bodies, national governments and research institutions by building up a common data collection and reporting mechanism at a National level.

The project plans to address this issue by bringing together various national institutions to a common information sharing platform and thereby building the capacity of the states to manage knowledge on wildlife crime trends and threat assessments. It will also bring together various agencies (Customs, Police, Forests) within the national government in enhancing collection and sharing information on environmental crime. Hence the objective of the project can be summarized as;

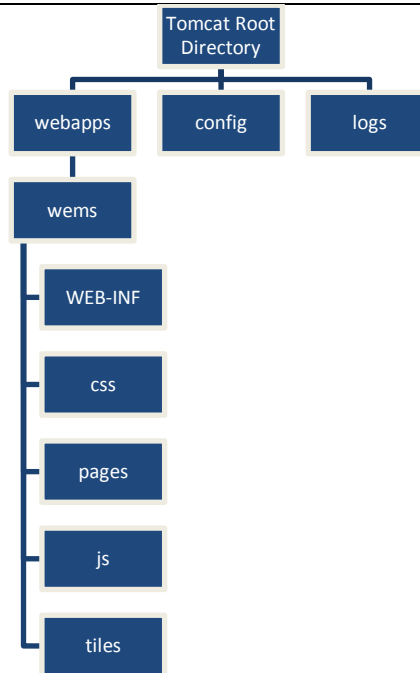
- Strengthening Partnership of Public sector and Research Institutions in the implementing region to strengthen E-Governance with regard to information sharing on Environmental law enforcement.
- Develop an information-sharing portal for monitoring enforcement and compliance of national environmental law and feeding information through research and analysis to the WEMS model at a regional level.
- Produce a Global Wildlife Law Enforcement Governance Map depicting the illegal extractions at the range state and, seizures at the destination country with indicators identifying the actions taken by parties to the CITES convention in reducing the loss.

WEMS has to major development steps: WEMS database and Analysis, WEMS GIS. This document is principally related to WEMS database. The basic concept is WEMS database holds data about offenses seized according to Interpol ecomessage format. In addition, spatial information is also stored for further expansion: integration with GIS software which will be the next step of WEMS.

2. Deployment Components

WEMS database software consists of a single deployment component: **wems.war** that can be put in the deployment folder of any web servers. Figure below shows the folder structure for Apache Tomcat server:

Figure 1: WEMS - Deployment Folders for Tomcat



Once wems.war is copied to webapps folder. Starting Tomcat will create folder wems which has following sub folders:

- 1) `WEB-INF` – includes all the required libraries for implementing the WEMS database, all java classes for handling the application logic and configuration files.
- 2) `css` – includes all style sheet for rendering HTML.
- 3) `pages` - includes all JSP pages to interact with users.
- 4) `js` – stores all javascript codes to make user interface more friendly.
- 5) `tiles` – stores Struts tile components which define the look and feel of all the pages.

3. Deployment Environment

This section presents the system requirements for deploying the software.

The WEMS database software has web interface and will run on any web servers supporting Servlet of Sun Microsystems. Currently we use light weight servlet container: Tomcat of Apache.

For DBMS (Database Management System) we use MySQL version 5. For simplicity both Tomcat and MySQL are installed on the same machine.

Detailed instructions for installing these requirements are described in the development document – chapter 6: Deployment.

4. Deployment Procedures

Deploying software is quite straightforward; just simply start Tomcat and MySQL engine (in condition that the wems.war must be placed in the webapps folder).

5. Accessing Services

This section explains how to access the WEMS services

Using WEMS online server:

- 1) Start a browser
- 2) Access the following page: <http://wems.unu.edu/wems-africa/>

For local machine deployment:

- 1) [Ip-address](#) – the IP address of the web server hosting the web application. If it is a testing environment and the application is deployed in the local machine, the IP address can be replaced by the text: `localhost`;
- 2) [port-number](#) – is the port number used by the web server for listening to incoming requests. Usually, 8080 is the default value.

For example, if user sits on the computer where wems.war is deployed on the Tomcat server that is running on port 8080, he can type the following address in a web browser: <http://localhost:8080/wems>. After executing this request, a page will be displayed requiring user provide his credentials in order to perform the other tasks.

Figure 2: Accessing the Web Application

Wildlife Enforcement Monitoring System

CASES SPECIES PERSON COMPANY AGENCY ADMINISTRATION LEGAL INSTRUMENTS QUERY WEMS IMAP LOG

The Wildlife Enforcement Monitoring System (WEMS) is developed by **United Nations University- Campus Computing Center** under the auspices of **United Nations University - Institute Advanced Studies**, and supported by **ESRI Corporation**

Enter user name, password to login

User Name

Password

Login

Following subsections describes various user tasks which are grouped into different categories. The order of these categories is exactly the same as one in the development document.

5.1 Section 1 – Adding Seizure Information

a) Entering a Case (Offense)

User initializes functions related to offense management by clicking on the tab **“Case”** on the menu bar. Upon clicking, a search form is displayed as shown in following figure:

Figure 3: Offense Search Form

The figure displays two versions of the 'Offense Search Form' side-by-side. Both forms have a yellow header with the text 'List offenses, enter criteria and click List button'. The left form, for normal users, includes input fields for 'Start Year' and 'End Year', and 'List' and 'Cancel' buttons. The right form, for LATF users, includes the same year fields but also adds 'Status' and 'Organization Country' dropdown menus. The 'Status' dropdown is currently set to 'Select Status'. The 'Organization Country' dropdown is open, showing a list of countries: 'Kenya', 'Tanzania', 'Uganda', and 'Congo Brazzaville'. The 'List' and 'Cancel' buttons are also present on the right form.

The search form on the left is loaded when a normal user logs in while the one on the right is reserved for LATF users. LATF users can have more search criteria such as filter on offense status and country where offense is entered. The common criteria are the year range in which offenses take place. User can leave any criteria blank which means this will not count in the search process.

When user clicks "List" button, a list of offenses that he (she) is allow to view is displayed as shown in the figure below:

Figure 4: Offense List



The screenshot displays the Wildlife Enforcement Monitoring System (WEMS) interface. At the top, there is a navigation bar with the WEMS logo and several menu items: CASES SPECIES, PERSON COMPANY, AGENCY ADMINISTRATION, LEGAL INSTRUMENTS QUERY, and WEMS IMAP LOG. Below the navigation bar, the main content area is titled "List of Offenses". It shows a message: "25 Offenses found, displaying 1 to 18. <<First Prev 1, 2 Next Last>>". There is an "Add" button in the top right corner of the list area. The list itself is a table with columns: No, Code Name, Legal Description, City, and Actions. The Actions column contains buttons for View, Edit, and Delete, along with document icons. The table lists 18 offenses, each with a unique code name and a description of the violation. At the bottom of the list, it says "25 Offenses found, displaying 1 to 18. <<First Prev 1, 2 Next Last>>". The footer of the page includes the year 2009 and the logo for the Center for Electronic Governance.

No	Code Name	Legal Description	City	Actions
1	Ivor_7	Violation of Customs act	Osaka	View Edit Delete
2	Croc_1	Violation of endangered species act	Paris	View Edit Delete
3	Turt_1	Violation of endangered species act	Addis Ababa	View Edit Delete
4	Cuck_1	Violation of Endangered species act	Lyon	View Edit Delete
5	Rept_1	Violation of Endangered Species act	Osaka	View Edit Delete
6	Turt_2	Violation of Customs act	Nagoya	View Edit Delete
7	Antl_1	Violation of Endangered species act	Bangkok	View Edit Delete
8	Antl_2	Violation of Endangered Species act	Taipei City	View Edit Delete
9	Ivor_8	Violation of Customs act	Tokyo	View Edit Delete
10	Antl_5	Violation of Customs act	New Delhi	View Edit Delete
11	Croc_2	Violation of customs act	Douala	View Edit Delete
12	Croc_4	Violation of Endangered Species act	Hong Kong	View Edit Delete
13	Rhin_1	Violation of Customs act	Sana'a	View Edit Delete
14	Bird_1	Violation of customs act	Kuala Lumpur	View Edit Delete
15	Turt_1	Violation of endangered species act	Sydney	View Edit Delete
16	Cuck_3	Violations of Customs act	Chennai	View Edit Delete
17	Ivor_9	Violation of Customs act	Chennai	View Edit Delete
18	Ivor_4	Violation of Endangered Species act	Chennai	View Edit Delete

The rule for viewing offenses is below:

- LATF users can view any cases
- Users in a country (*determined by organization where they work*) can only see cases entered by users of this country and cases published by LATF (status of case is **PUBLISHED**)

From this list user can perform following actions by clicking on appropriate buttons:

- Adding new offense
- Viewing offense details
- Editing an existing offense
- Deleting an existing offense

Deleting an offense is simple; a message is displayed and asking user about confirmation. If he agrees, the chosen offense will be removed from database. The other tasks are more complex because an offense has composite structure: each offense is divided into several parts of data. For illustration we only demonstrate the steps for adding new offense.

User launches this action by clicking on the “Add” button at the bottom of the list of offenses page. The first screen will be loaded and user can enter general data about this new offense:

Figure 5: Adding new offense – general information

Wildlife Enforcement Monitoring System

CASES SPECIES PERSON COMPANY AGENCY ADMINISTRATION LEGAL INSTRUMENTS QUERY WEMS IMAP LOG

Adding Offense(fields with * are mandatory)

1. Subject

Brief Description of the Offense

Code Name*

Legal Description of the Offense*

2. Place and Method of Discovery

Place*

How the offense was discovered

Country*

Province

City

3. Date and Time of the Offense

Date of Actual Crime

Date of Seizure

Time of actual Crime [Hr:mts]

Time of Seizure [Hr:mts]

Fields marked with asterisk are mandatory. In addition some data must be validated before submitting to server. For example:

- Date of actual crime should have correct **format, 31/02/2004** is an invalid date because there is no 31th day of February.
- Date of actual crime cannot be late than date of seizure
- Date of actual crime and date of seizure cannot be late than current date

Note: all date fields are handled by Calendar, user cannot input them directly in the text box.

If there are still errors, user cannot submit the page thus, nothing will be written in database. Error messages are also displayed in red color permitting user to correct them easily.

If all data is valid, user will move to the second page where he can enter information about species involved as showed in the figure below:

b) Contraband Product

Figure 6: Adding new offense – species information

4. Contraband Product

Offense Code: tortoise_01

Select an Option: Select Phylum, Select Class, Select Order, Select Family

Species*: Gazella cuvieri

Common Name: gazelles

Local Name:

Quantity*:

Unit: Select Unit

Type: Select Type

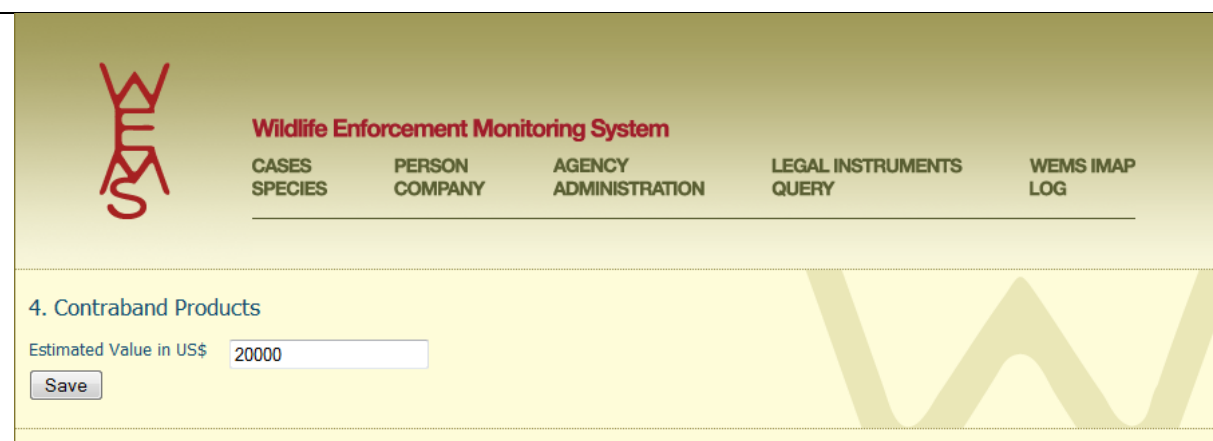
Buttons: Add New Species, Refresh, Save, List Products

User can repeat this process as many times as he wishes. However he cannot choose the species that is already existed. After choosing the species,

c) Entering Value or amount

The user will move to the page where value of the seizure is estimated in US dollars (by clicking on the button "Value Product").

Figure 7: Adding new offense – value product in US dollars



Wildlife Enforcement Monitoring System

CASES SPECIES PERSON COMPANY AGENCY ADMINISTRATION LEGAL INSTRUMENTS QUERY WEMS IMAP LOG

4. Contraband Products

Estimated Value in US\$

d) Adding the name of the offender

After entering the contraband details, the user moves to the page where he can specify persons involved in the seizure as showed in the following figure:

Figure 8: Adding new offense – Persons involved in offense



5. Person involved

Offense Code

Person*

Date of Arrest

Date of Prosecution

Calendar: Jun 2011

Mo	Tu	We	Th	Fr	Sa	Su
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	1	2	3
4	5	6	7	8	9	10

Today

Please be noted that **every field in this page is mandatory**. User can add new person from this page and refresh the **person list by clicking on "Add New Person" and "Refresh" buttons respectively**.

e) Adding the name of the company

The companies involved in the seizure can be added after persons are specified. Figure below shows the procedure for adding new company to the seizure:

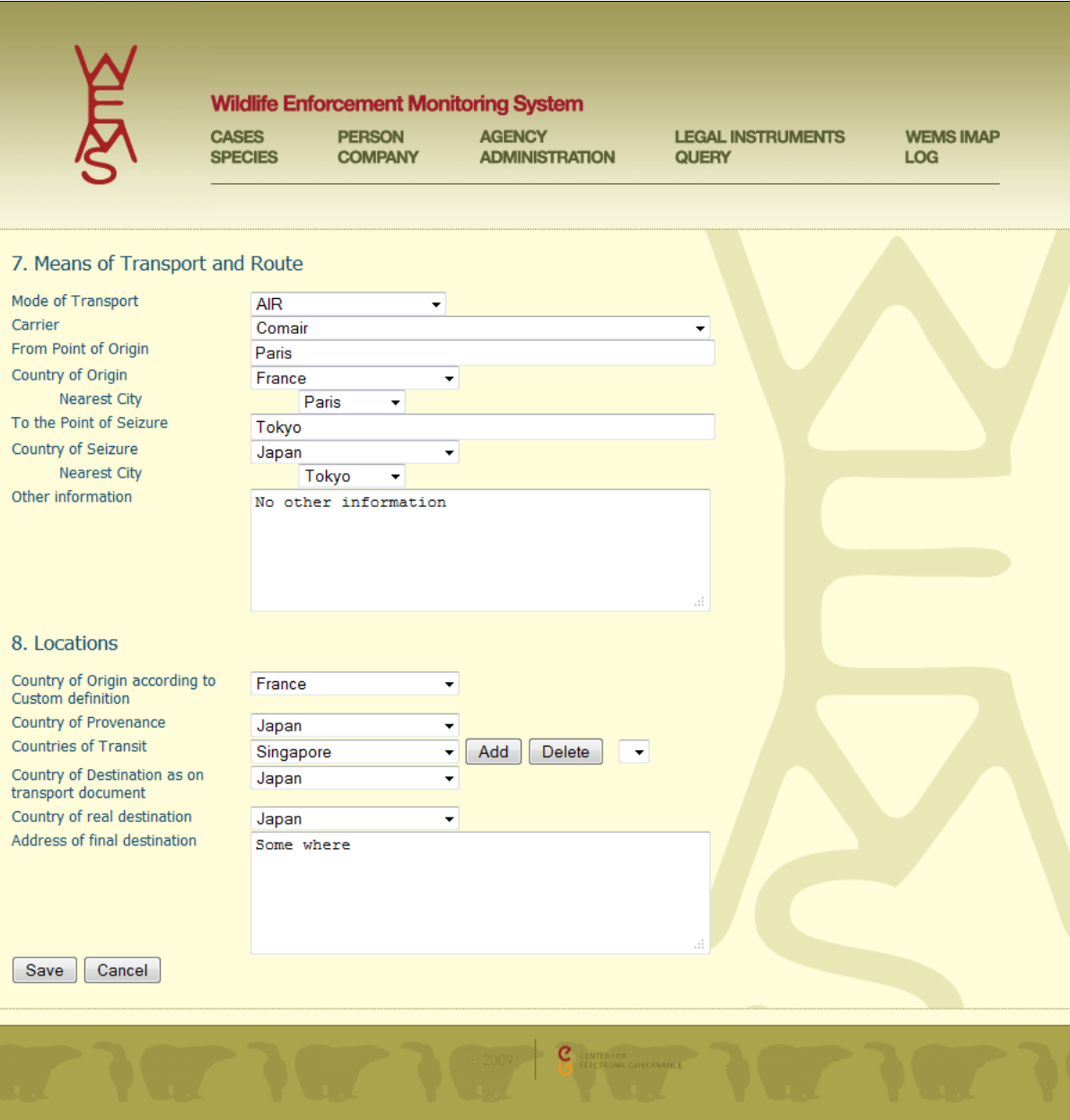
Figure 9: Adding new offense – Companies involved in offense

The screenshot displays the Wildlife Enforcement Monitoring System (WEMS) interface. At the top left is the WEMS logo. To its right, the text 'Wildlife Enforcement Monitoring System' is displayed. Below this, a navigation menu includes links for 'CASES SPECIES', 'PERSON COMPANY', 'AGENCY ADMINISTRATION', 'LEGAL INSTRUMENTS QUERY', and 'WEMS IMAP LOG'. The main content area is titled '6. Company involved'. It contains an 'Offense Code' field with the value 'code 1'. Below this is a 'Company' section with a dropdown menu currently showing 'Select Company', and two buttons: 'Add New Company' and 'Refresh'. At the bottom of the form, there are three buttons: 'Save', 'List Companies', and 'Skip to next: Adding Transport Means'.

f) Adding the transportation details

After specifying the companies involved, user moves to the page where he can specify the transportation means of the seizure, a sample location of the seizure is showed in the figure below:

Figure 10: Adding new offense – Transport means and location



Wildlife Enforcement Monitoring System

CASES SPECIES PERSON COMPANY AGENCY ADMINISTRATION LEGAL INSTRUMENTS QUERY WEMS IMAP LOG

7. Means of Transport and Route

Mode of Transport: AIR
 Carrier: Comair
 From Point of Origin: Paris
 Country of Origin: France
 Nearest City: Paris
 To the Point of Seizure: Tokyo
 Country of Seizure: Japan
 Nearest City: Tokyo
 Other information: No other information

8. Locations

Country of Origin according to Custom definition: France
 Country of Provenance: Japan
 Countries of Transit: Singapore
 Country of Destination as on transport document: Japan
 Country of real destination: Japan
 Address of final destination: Some where

Buttons: Add, Delete, Save, Cancel

Footer: 2009 | CENTER FOR ELECTRONIC GOVERNANCE

f) Adding law enforcement details

Once transport means and location are defined, user moves to the page where he can enter information related to law enforcement agency as showed in the figure below:

Figure 11: Adding new offense – Law Enforcement Agency

The screenshot shows the Wildlife Enforcement Monitoring System (WEMS) interface. At the top left is the WEMS logo. To its right is the title "Wildlife Enforcement Monitoring System". Below the title is a navigation menu with five items: "CASES SPECIES", "PERSON COMPANY", "AGENCY ADMINISTRATION", "LEGAL INSTRUMENTS QUERY", and "WEMS IMAP LOG". The "AGENCY ADMINISTRATION" item is highlighted. Below the navigation menu is a section titled "9. Law Enforcement Agency". This section contains a form with the following elements: "Offense Code" with a text input field containing "code 1"; "Agency" with a dropdown menu showing "Select Agency", an "Add New Agency" button, and a "Refresh" button; and a row of three buttons: "Save", "List Agencies", and "Skip to final step: Adding other information".

After completing this information, user moves to the final page where he can enter other information showed in the figure below:

Figure 12: Adding new offense – Other Information



The screenshot displays the 'Wildlife Enforcement Monitoring System' (WEMS) interface. At the top left is the WEMS logo. To its right is the system title 'Wildlife Enforcement Monitoring System' in red. Below the title are five navigation links: 'CASES SPECIES', 'PERSON COMPANY', 'AGENCY ADMINISTRATION', 'LEGAL INSTRUMENTS QUERY', and 'WEMS IMAP LOG'. The main content area is titled '10. Identification of Documents Used' and contains a text box for specifying document types. Below this is a question 'Were the documents altered or fraudulent?' with 'Yes' and 'No' radio buttons, where 'No' is selected. The next section is '11. Modus Operandi' with a text box for description. This is followed by '12. Additional Information' with a text box for other details. The final section is '13. Information Requested' with a text box for foreign country information. At the bottom left are 'Save' and 'Cancel' buttons. The footer shows the year '2009' and the 'CENTER FOR ELECTRONIC GOVERNANCE' logo.

Wildlife Enforcement Monitoring System

CASES SPECIES PERSON COMPANY AGENCY ADMINISTRATION LEGAL INSTRUMENTS QUERY WEMS IMAP LOG

10. Identification of Documents Used

Specify the types of documents, including authorizations, transport documents, permits and certificates

Were the documents altered or fraudulent? ☐ Yes ☒ No

11. Modus Operandi

Description of Modus Operandi

12. Additional Information

Other Details

13. Information Requested

Does investigators need information from foreign countries?

Save Cancel

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5.2: Section 2: Managing Data

a) Organization Management

Organization management activities are reserved for LATF user and include following functions:

- Adding new organization
- Deleting an organization
- Updating an organization
- Viewing organization details

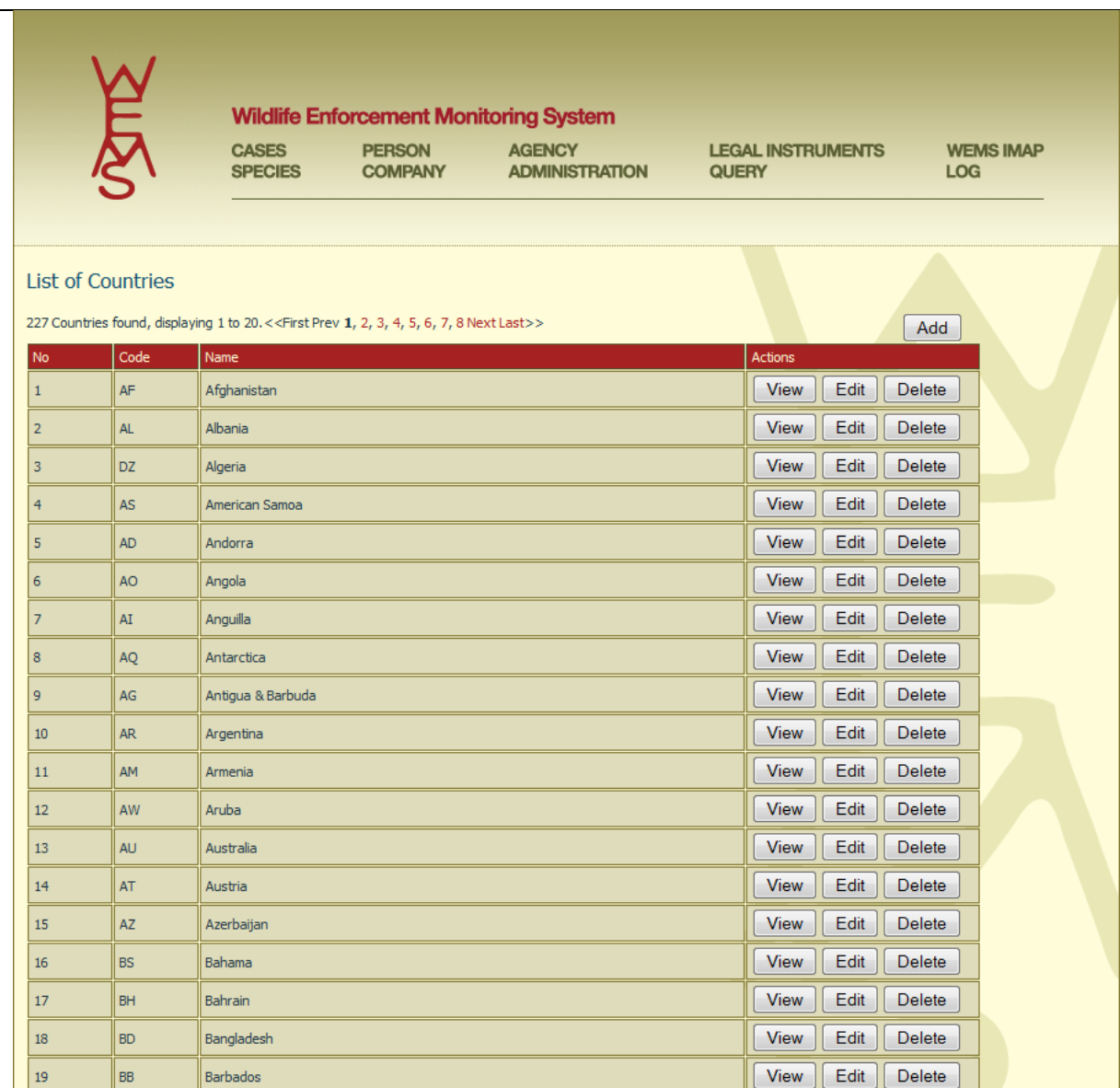
a) Country Management

Country management deals with various tasks concerning country, users can perform following actions: adding new country, editing an existing country, viewing country details, listing all countries and deleting a country.

Country data is part of geographical data which is used in GIS features.

User initializes country management tasks by first clicking on the "Administration" tab and then choosing "Country Management" link (a number of links related to administration will be loaded upon clicking on this tab). Whenever user clicks on this link, the list of all countries will be loaded as illustrated in the figure below:

Figure 13: Listing all countries



Wildlife Enforcement Monitoring System

CASES SPECIES PERSON COMPANY AGENCY ADMINISTRATION LEGAL INSTRUMENTS QUERY WEMS IMAP LOG

List of Countries

227 Countries found, displaying 1 to 20. <First Prev 1, 2, 3, 4, 5, 6, 7, 8 Next Last>> [Add](#)

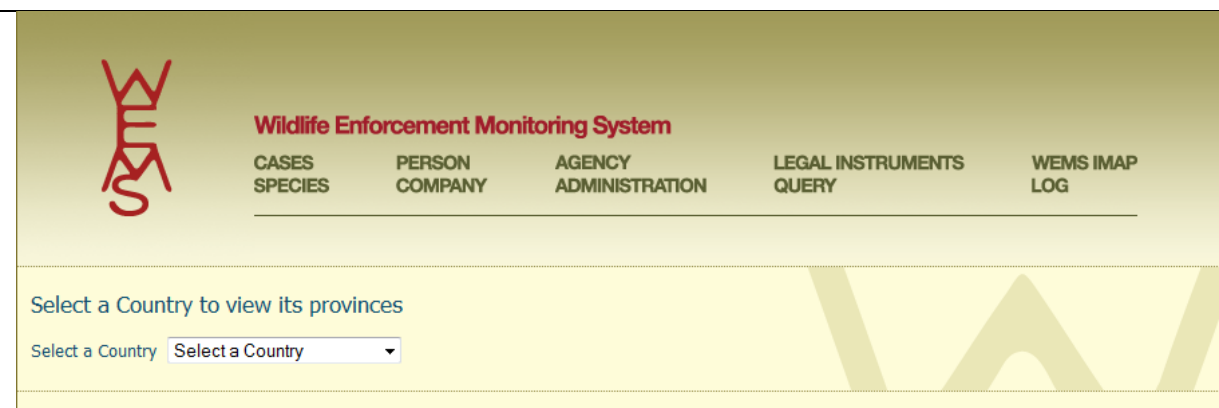
No	Code	Name	Actions
1	AF	Afghanistan	View Edit Delete
2	AL	Albania	View Edit Delete
3	DZ	Algeria	View Edit Delete
4	AS	American Samoa	View Edit Delete
5	AD	Andorra	View Edit Delete
6	AO	Angola	View Edit Delete
7	AI	Anguilla	View Edit Delete
8	AQ	Antarctica	View Edit Delete
9	AG	Antigua & Barbuda	View Edit Delete
10	AR	Argentina	View Edit Delete
11	AM	Armenia	View Edit Delete
12	AW	Aruba	View Edit Delete
13	AU	Australia	View Edit Delete
14	AT	Austria	View Edit Delete
15	AZ	Azerbaijan	View Edit Delete
16	BS	Bahama	View Edit Delete
17	BH	Bahrain	View Edit Delete
18	BD	Bangladesh	View Edit Delete
19	BB	Barbados	View Edit Delete

Exactly the same way as offense management user can perform the management task by clicking on appropriate button: Add button at the bottom of the list and View, Edit and Delete button on each line which briefly display country name.

b) Province Management

Province data is also part of geographical data. User can follow the same steps described in previous section to initialize province management tasks. But there is a minor change when he clicks on the link "Province Management" detailed as follow: The list of provinces is not loaded because province cannot be standalone data, they should belong to a country so that a country must be selected before listing. Figure below show the screen where user can choose a country to list its provinces:

Figure 14: Select country for listing its provinces



The screenshot displays the Wildlife Enforcement Monitoring System (WEMS) interface. At the top left is the WEMS logo, a stylized red 'WEMS' text. To its right, the title 'Wildlife Enforcement Monitoring System' is written in red. Below the title, there are five menu items: 'CASES SPECIES', 'PERSON COMPANY', 'AGENCY ADMINISTRATION', 'LEGAL INSTRUMENTS QUERY', and 'WEMS IMAP LOG'. A horizontal line separates these menu items from the main content area. The main content area has a light yellow background and features the text 'Select a Country to view its provinces' in blue. Below this text is a dropdown menu with the placeholder text 'Select a Country' and a small downward arrow icon.

Figure below shows an example of the list provinces of India:

Figure 15:Example- Provinces of India

Wildlife Enforcement Monitoring System

CASES SPECIES PERSON COMPANY AGENCY ADMINISTRATION LEGAL INSTRUMENTS QUERY WEMS IMAP LOG

List of Provinces for country India

32 Provinces found, displaying 1 to 20. <<First Prev 1, 2 Next Last>> [Add](#)

No	Name	Actions
1	Chhattisgarh	View Edit Delete
2	Andaman and Nicobar Islands	View Edit Delete
3	Andhra Pradesh	View Edit Delete
4	Arunachal Pradesh	View Edit Delete
5	Assam	View Edit Delete
6	Bihar	View Edit Delete
7	Daman and Diu	View Edit Delete
8	Delhi	View Edit Delete
9	Goa	View Edit Delete
10	Gujarat	View Edit Delete
11	Haryana	View Edit Delete
12	Himachal Pradesh	View Edit Delete
13	Jammu and Kashmir	View Edit Delete
14	Jharkhand	View Edit Delete
15	Karnataka	View Edit Delete
16	Kerala	View Edit Delete
17	Madhya Pradesh	View Edit Delete
18	Maharashtra	View Edit Delete
19	Manipur	View Edit Delete
20	Meghalaya	View Edit Delete

32 Provinces found, displaying 1 to 20. <<First Prev 1, 2 Next Last>>

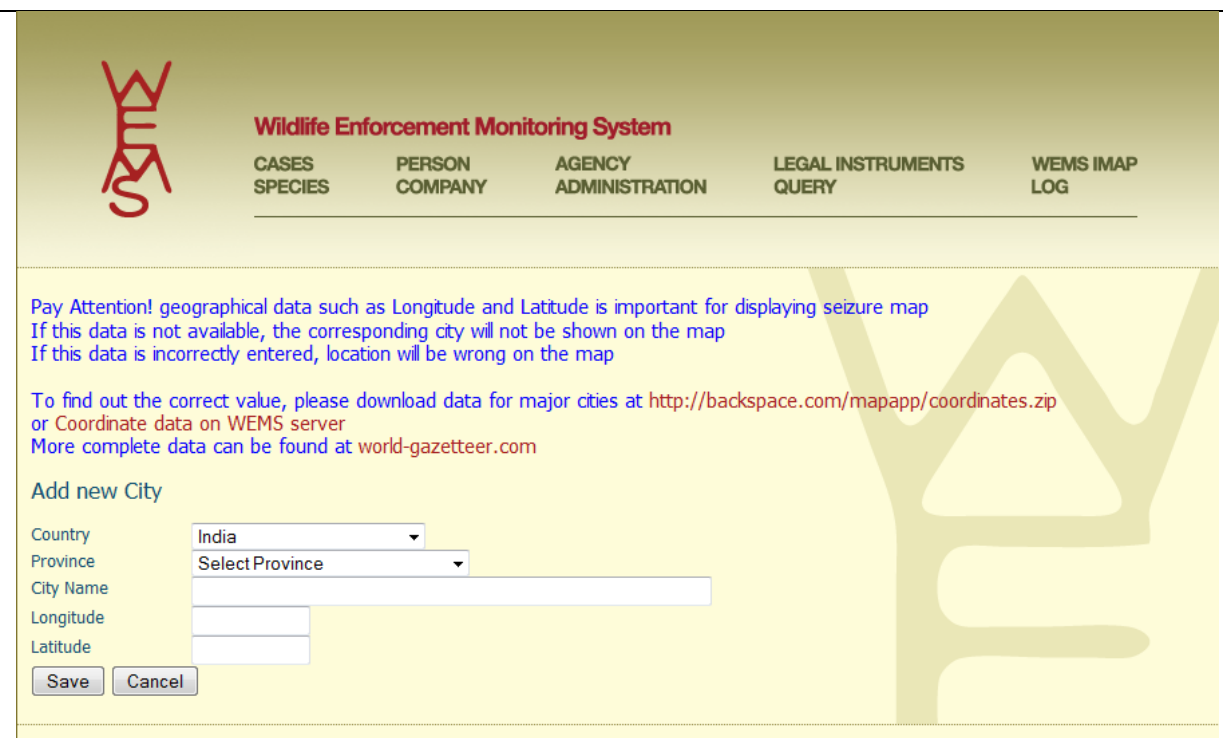
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c) City Management

City management tasks follow the same principle as those of Province management. A country must be specified before listing all cities.

A city can optionally belong to a province so user can specify a province in creating or editing a country as show in the figure below:

Figure 16: Adding new city



The screenshot displays the Wildlife Enforcement Monitoring System (WEMS) web interface. At the top left is the WEMS logo. To its right is the title 'Wildlife Enforcement Monitoring System' in red. Below the title is a horizontal menu bar with five tabs: 'CASES SPECIES', 'PERSON COMPANY', 'AGENCY ADMINISTRATION', 'LEGAL INSTRUMENTS QUERY', and 'WEMS IMAP LOG'. The 'CASES SPECIES' tab is currently selected. Below the menu bar, there is a yellow background area containing instructional text in blue and red. The text reads: 'Pay Attention! geographical data such as Longitude and Latitude is important for displaying seizure map. If this data is not available, the corresponding city will not be shown on the map. If this data is incorrectly entered, location will be wrong on the map.' Below this, it says: 'To find out the correct value, please download data for major cities at <http://backspace.com/mapapp/coordinates.zip> or [Coordinate data on WEMS server](#). More complete data can be found at world-gazetteer.com.' Below the text is the 'Add new City' form. The form has five input fields: 'Country' (a dropdown menu showing 'India'), 'Province' (a dropdown menu showing 'Select Province'), 'City Name' (a text input field), 'Longitude' (a text input field), and 'Latitude' (a text input field). At the bottom of the form are two buttons: 'Save' and 'Cancel'.

d) Species Management

Species management tasks are launched by clicking the tab "Species" on the menu bar. Upon clicking a list of species will be loaded as showed in the following figure:

Figure 17: Species List

Wildlife Enforcement Monitoring System

CASES SPECIES PERSON COMPANY AGENCY ADMINISTRATION LEGAL INSTRUMENTS QUERY WEMS IMAP LOG

List of Species

622 Species found, displaying 1 to 20. <First Prev 1, 2, 3, 4, 5, 6, 7, 8 Next Last>

[Add](#)

No	Scientific Name	Common Name	Category	Actions
1	Antilocapra americana	Pronghorn	Appendix I	Edit Delete
2	Addax nasomaculatus	Addax nasomaculatus	Appendix I	Edit Delete
3	Bos gaurus	Bos gaurus	Appendix I	Edit Delete
4	Bos mutus	Bos mutus	Appendix I	Edit Delete
5	Bos sauveli	Bos sauveli	Appendix I	Edit Delete
6	Bubalus depressicornis	Bubalus depressicornis	Appendix I	Edit Delete
7	Bubalus mindorensis	Bubalus mindorensis	Appendix I	Edit Delete
8	Bubalus quarlesi	Bubalus quarlesi	Appendix I	Edit Delete
9	Capra falconeri	Capra falconeri	Appendix I	Edit Delete
10	Capricornis milneedwardsii	Capricornis milneedwardsii	Appendix I	Edit Delete
11	Capricornis rubidus	Capricornis rubidus	Appendix I	Edit Delete
12	Capricornis sumatraensis	Capricornis sumatraensis	Appendix I	Edit Delete
13	Capricornis thar	Capricornis thar	Appendix I	Edit Delete
14	Cephalophus jentinki	Cephalophus jentinki	Appendix I	Edit Delete
15	Gazella cuvieri	gazelles	Appendix I	Edit Delete
16	Gazella leptoceros	gazelles	Appendix I	Edit Delete
17	Hippotragus niger variati	Hippotragus niger variati	Appendix I	Edit Delete
18	Naemorhedus baileyi	Naemorhedus baileyi	Appendix I	Edit Delete
19	Naemorhedus caudatus	Naemorhedus caudatus	Appendix I	Edit Delete
20	Naemorhedus goral	Naemorhedus goral	Appendix I	Edit Delete

622 Species found, displaying 1 to 20. <First Prev 1, 2, 3, 4, 5, 6, 7, 8 Next Last>

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Actually the list of all species is loaded but in the future species should be re-organized applying the structure in the document provided by CITES.

In principle user can add new species, delete an existing species and edit an existing species but it is not advisable once CITES data is imported to the system.

e) Person Management

Person Management deals with managing persons who involve in offenses. It provides following capabilities (by clicking on the appropriate buttons):

- Adding new person
- Editing a person

- Deleting a person
- Listing all persons
- Viewing person details

Person Management is initialized by clicking on the tab “Person”: a list of persons will be loaded when user clicks on it.

To add a new person or edit an existing person some data must be validated such as family name should be provided, date of birth must be provided etc. Person data cannot be stored unless all this information is provided and valid.

Figure 18: Adding new person

Add New Person (fields with * are mandatory)

Family Name*
Given Name*
Sex: Select Gender
Alias
Date of Birth: [] Select Clear
Country of Birth: Select Country
Nationality
Address
ID Type: National Card, Passport, National Card, Driver License, Other
ID Number
Country of Issue
Issue Date: [] Select Clear
Expire Date: [] Select Clear
Profession
Other
Save Cancel

f. Company Management

Company Management is very similar to Person Management. It's used to manage companies involved in offenses.

5.3 User Management

User Management, as its name indicates, deals with various tasks related to users. We distinguish two kinds of user: normal user and administrator. A normal user can only change his password and update his profile while an administrator; besides these operations; can add new user, delete a user, list all users that he has the right to administer and update user privilege.

An administrator is normally associated with an organization. It means that he can only manage its users. However there is a “super” administrator who is cross-organization administrator and can manage all users.

User Management is launched by first clicking on the tab “Administration” and then clicking the link “User Management”. A submenu is displayed as follow:

Figure 19: User Management Main Menu



The sub menu content is varied based on user credentials provided at login. If a normal user logs in, only the first 2 items are displayed. Trying another item using direct link will raise an error.

a) Change Password

Changing password is initialized by clicking on the corresponding link; a page will be displayed requiring user to enter his old password, new password and the confirmation of new password. Some validations are performed before the new password is stored in database:

- Verify if the new password and the confirmation are identical, if they are not identical, an error message will be displayed.
- Verify if the old password is correct or not. If it's not correct, another error message is displayed.
- If both validations are correct, new password will be stored in database and a confirm message will be showed.

Figure below shows the case where old password is not correct:

Figure 20: Error while changing user password

The screenshot displays the WEMS web application interface. At the top, a navigation bar includes a 'Welcome [Super Administrator] Sign out' message. Below this is a header section with the WEMS logo and a menu bar containing links for 'CASES SPECIES', 'PERSON COMPANY', 'AGENCY ADMINISTRATION', 'LEGAL INSTRUMENTS QUERY', and 'WEMS IMAP LOG'. The main content area is titled 'Hello admin!' and 'Change Password'. It features three input fields for 'Current Password', 'New Password', and 'Confirm New Password', each with a password mask (dots). Below the fields are 'Save' and 'Cancel' buttons. A red error message, 'Old password is incorrect', is displayed at the bottom of the form area. The background of the interface has a light green and yellow color scheme with a large 'W' graphic.

b) Update Profile

Updating user profile only updates user email address and his full name only.

c) List Users

This function is reserved for administrators only. It shows a list of users that an administrator can manage.

d) Add Users

This function allows an administrator to add new user

e) Delete Users

This function allows an administrator to delete an existing user from the list of users that he can manage

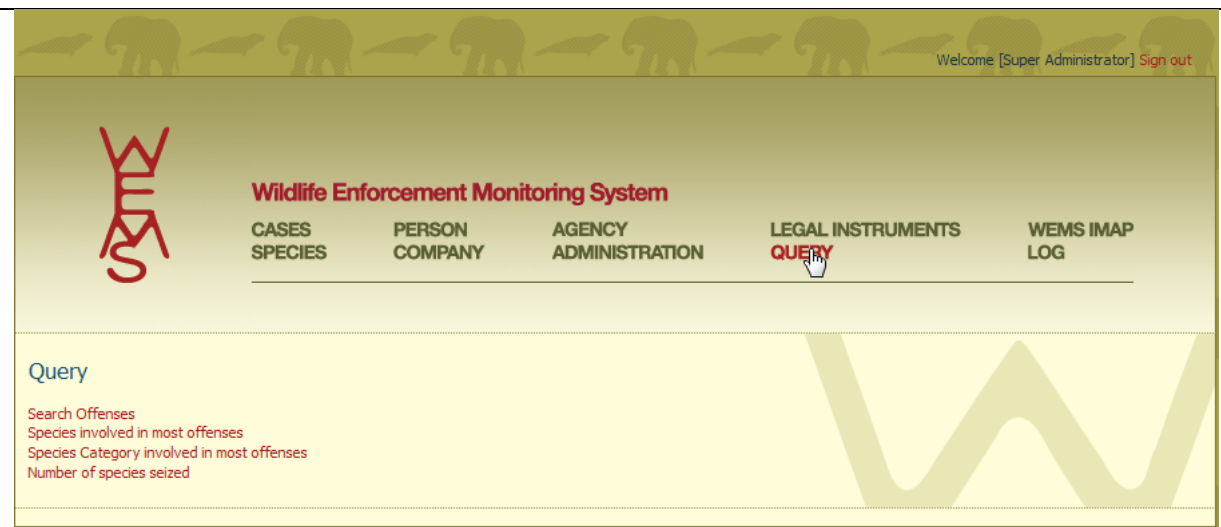
f) Update User Privilege

This function allows an administrator to update privilege for a user: promote a normal user to administrator or change other administrator to normal user.

5.4. Search Facilities

Search functions are loaded by clicking on the tab "Query" on menu bar. The list of available functions is displayed as follows:

Figure 21: Query Menu



Upon click on the menu, following screen will appear

Figure 22: Search offenses

The screenshot shows the "Search Offenses" form in the WEMS interface. The header and navigation bar are identical to Figure 21. The "LEGAL INSTRUMENTS" menu is expanded, and the "QUERY" option is selected. The form is titled "Search Offenses, Enter data and click Submit button". It contains several search parameters: "Operator" with radio buttons for "AND" (selected) and "OR"; "Species Category" with a dropdown menu showing "Appendix I"; "Year" with a dropdown menu showing "2006"; "Agency" with a dropdown menu showing "All Agencies"; "Person" with a dropdown menu showing "All Persons" and a mouse cursor hovering over the dropdown arrow; "Company" with a dropdown menu showing "All Companies"; and "Country of Seizure" with a dropdown menu showing "All Countries". At the bottom of the form are "Submit" and "Cancel" buttons.

There are several search parameters and user can choose appropriate value from the combo box. These parameters can be combined to limit search results by specifying AND operator. Figure below shows the all offenses seized in 2006.

Figure 23: All seizures in 2006

The screenshot displays the Wildlife Enforcement Monitoring System (WEMS) interface. At the top, there is a header with the WEMS logo, the system name, and navigation tabs: CASES SPECIES, PERSON COMPANY, AGENCY ADMINISTRATION, LEGAL INSTRUMENTS QUERY, and WEMS IMAP LOG. A user greeting 'Welcome [Super Administrator] Sign out' is visible in the top right. Below the header, the 'List of Offenses' section is active. It includes an 'Export All' button and a message '4 Offenses found, displaying all Offenses.' A table lists the offenses with columns for No, Code Name, Legal Description, City, and Actions. Each row has a 'View' button and icons for PDF and Excel export. A 'Search Again' button is located above the table.

No	Code Name	Legal Description	City	Actions
1	Ivor_7	Violation of Customs act	Osaka	View [PDF] [Excel]
2	Cuck_1	Violation of Endangered species act	Lyon	View [PDF] [Excel]
3	Rept_1	Violation of Endangered Species act	Osaka	View [PDF] [Excel]
4	Antl_5	Violation of Customs act	New Delhi	View [PDF] [Excel]

From the result user can view the detail of each offense by clicking on the corresponding button. He or she can export result in Excel or PDF format by clicking on the b button.

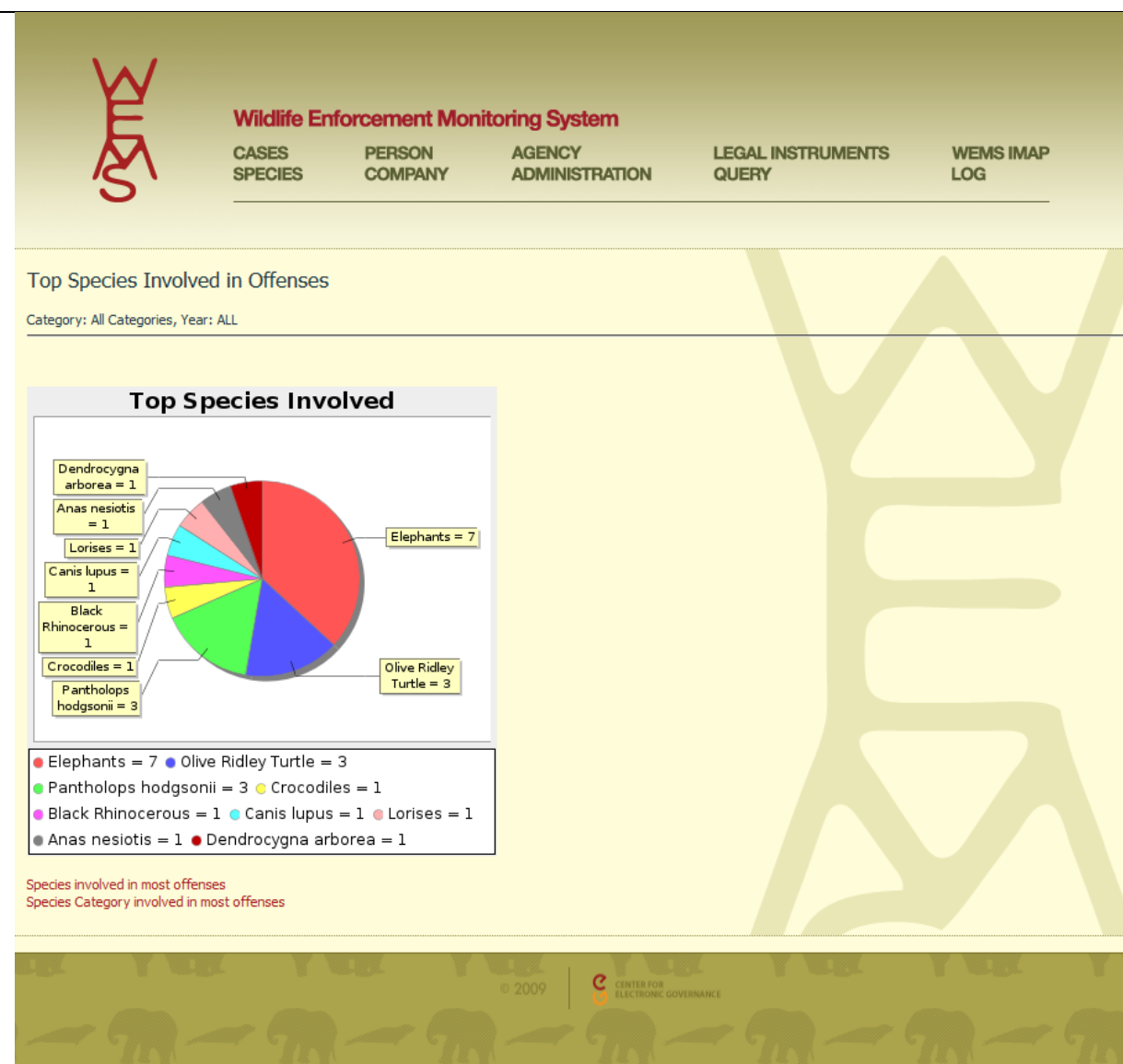
5.5 Reporting Facilities

Just like the way search functionality is accessed, various reporting facilities are available by clicking on the tab "Query" of menu bar. For instance only 3 kinds of report are produced:

- Top 10 species involved in most offenses
- Top 10 species categories involved in most offenses
- Top 10 number of species seized

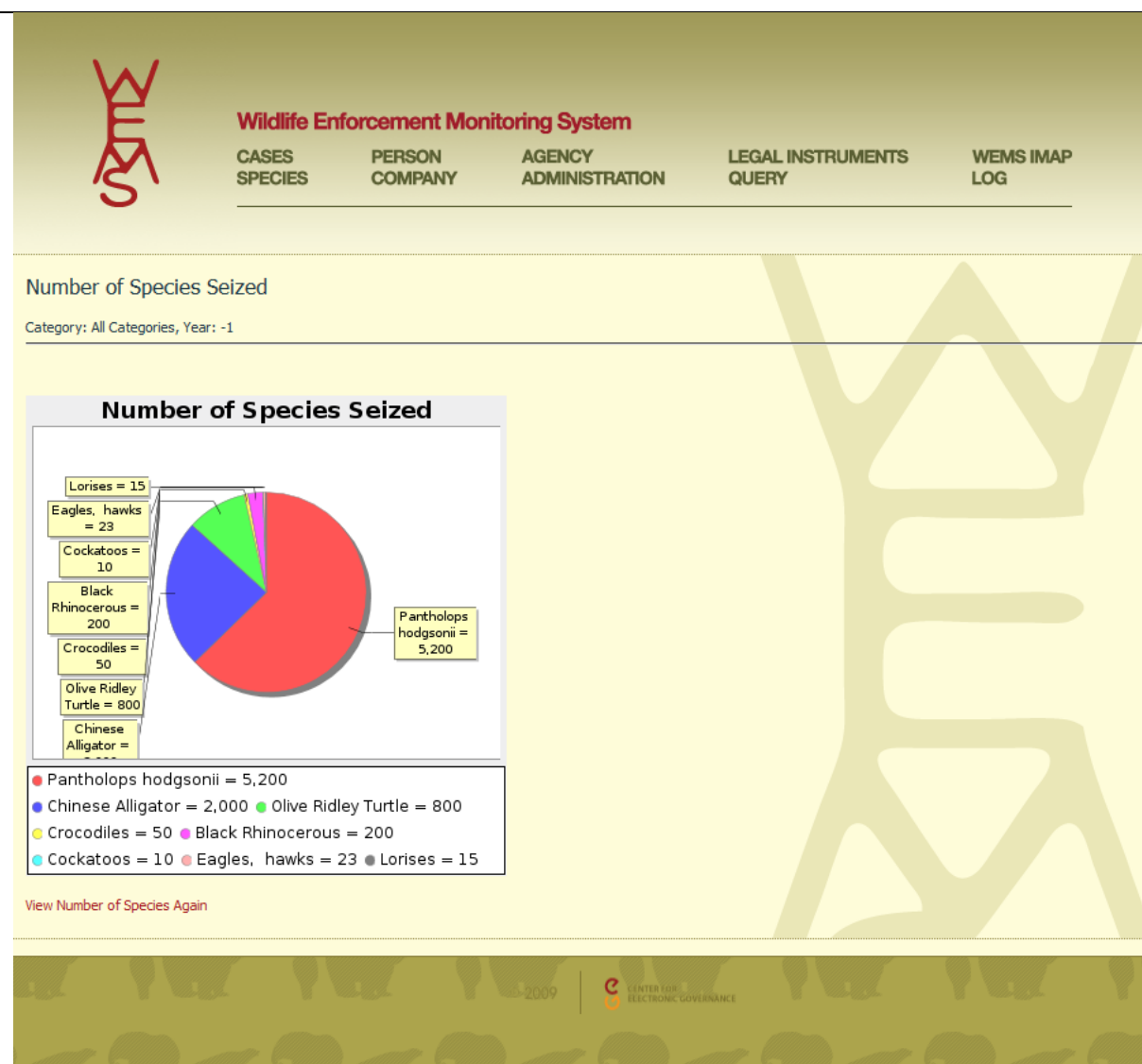
The first 2 reports are very similar except that the second one requires user select species category from a dropdown list containing species categories in database. User always has to enter the year when seizures take place or he can enter "all" for requesting data for every year. After all required fields are entered; a report in pie chart will be produced. Figure below shows the top 10 species involved in all cases:

Figure 24: Top 10 species involved in all cases



To view top 10 number species involved in offenses, user has to enter species category and the year when offenses take place. Figure below shows the top 10 number for all categories and every year:

Figure 25: Top 10 number species involved in all cases



5.6 WEMS IMAP

WEMS IMAP provides some basic GIS features such as showing seizure map of offenses or tracking routes of all offenses satisfying certain criteria. It's advisable to have broad band connection in order to use this functionality because map loading and manipulation may be long.

a) Places of seizure

This GIS feature permits user to see the seizure map of offenses in a chosen area (currently the notion *area* is related to continent in the world). So that before viewing the map, user must choose an area as shown in the figure below:

Figure 26: Input for viewing seizure map



The screenshot displays the Wildlife Enforcement Monitoring System (WEMS) interface. At the top left is the WEMS logo. To its right, the title 'Wildlife Enforcement Monitoring System' is displayed in red. Below the title, there are five navigation links: 'CASES SPECIES', 'PERSON COMPANY', 'AGENCY ADMINISTRATION', 'LEGAL INSTRUMENTS QUERY', and 'WEMS IMAP LOG'. The main section is titled 'Seizure Map in an Area'. It contains three input fields: 'Map Type' with a dropdown menu showing 'ESRI', 'Area' with a dropdown menu showing 'Asia', and 'Year of Seizure' with an empty text box. A 'Submit' button is located below these fields. The background of the interface features a large, stylized 'W' graphic.

Upon clicking on the Submit button, the result is shown in the figure below (the seizure points - cities are highlighted as red circle):

The year of seizure is not specified, application will look up all cases in database

Figure 27: Seizure map in Asia (every year)



User can zoom in seizure points if he (she) wants.

b) Tracking Routes

This GIS feature shows the routes of offenses satisfying certain criteria from origin to the seizure point. Figure below show the input screen to filter the offenses:

Figure 28: Input for tracking routes

Wildlife Enforcement Monitoring System

CASES SPECIES PERSON COMPANY AGENCY ADMINISTRATION LEGAL INSTRUMENTS QUERY WEMS IMAP LOG

Tracking Routes

Map Provider:

Species Category:

Select Species:

Select Year Range:

Country of Origin:

Country of Destination:

Select Year Range:

There are two working modes as shown in the figure: one is based on species in offenses and another is based on destination country where seizures took place. Figure below shows tracking routes for all offenses seizures in India:

Figure 29: Tracking routes of offenses in India



5.7 Log File

This feature is reserved to administrator and shows the log of all actions performed in application, i.e the time of entering or deleting an information and the details of access.

6. Frequently Asked Questions

This section presents a set of frequently asked questions (FAQs), related to the Gateway.

Q1: What are the technologies used by the WEMS?

The technologies used by the WEMS include:

Programming language	Java 1.5
Database	Mysql 5
Object Relational Mapping	Hibernate 3.2
Object XML mapping	XMLBeans 2.3.0
WEB framework	Struts 1.2.9, Spring 1.2.5
