

## ForSite Calculator Progress to 20170625

The ForSite Calculator was developed by Dermot Ryan (coding, functionality, security) and Thomas Cummins (conceptualising, graphical presentation). Progress is listed below, extracted (with limited editing) from development notes by DR.

To 20170513

General:

Performed server updates and upgrades.

Database and coding:

Periodic check-in of databases into version control.

Removed "fossil code" (commented-out code; can be retrieved from version control anyway).

Dynamic dropdowns for Plot and Survey added to controldesk.php.

Div added to index.php so that the range of years available for the Plot and Survey chosen in the dropdowns can be displayed.

Dynamic year range display (returned by server) in index.php now works.

Go button and year range now grayed out until you select a plot and a survey.

Go button and year range now grayed out if you select a plot and a survey for which there are no data, and div displays "No data".

Go button in Monitoring section now brings you to controldesk.php

To 20170530

General:

Performed server updates and upgrades.

Stock-taking of tasks outstanding

Database and coding:

Periodic check-in of databases into source control.

Reimplemented a Hype-generated landing page from JavaScript to PHP.

Index.php: replaced static dropdowns with dynamically generated dropdowns.

Added table 'plots' to 'monitoring' database: plot ids and full names.

Added is\_displayed columns to monitoring.plots and monitoring.survey\_codes.

Wrote PlotsFromDB and SurveysFromDB objects to retrieve DB info.

Modified index.php so PlotsFromDB and SurveysFromDB populate dropdowns.

To 20170517

General:

Performed server updates and upgrades.

Updated ForSite forum:

Updated live topics

Moved old topics to "Concluded" boards

Database and coding:

Periodic check-in of databases into source control.

Work on the Datasets Control Desk (controldesk.php):

Added labels to y-axis and y2-axis

Modified header.php so reference to dygraphs.css can be switched on and off

Rotated and formatted labels by modifying dygraphs.css file

To 20170509

## General:

Performed server updates.

## Database and coding:

Periodic check-in of databases into source control.

Work on the Datasets Control Desk (controldesk.php):

DataPhpURLGenerator now encapsulates process of retrieving meaningful names for surveys, sites and samplers from “monitoring” database.

getMonitoringDataColumnNamesAndDataPhpUrlString.php now includes survey, site and sampler in data returned to client side.

Meaningful names of Surveys, Site and Samplers added to the display in webapp.

pH displayed on the Y2 axis now, separate from the measurements that have units.

## To 20170502

## General:

Performed server updates.

Updated ForSite forum.

## Database and coding:

Periodic check-in of databases into source control.

Work on the Datasets Control Desk (controldesk.php):

Reevaluation of tables in “monitoring” database.

Adding meaningful names of Surveys, Site and Samplers to the display in webapp using data from tables in “monitoring” database.

## To 20170425

## General:

Performed server updates.

## Database and coding:

Periodic check-in of databases into source control

Work on the Datasets Control Desk (controldesk.php)

URL parameters for “Site”, “Survey” and sampler now processed correctly before displaying analyte graph.

Standard header and footer added to controldesk.php

CSV link in the footer links to data.php, using correct site, survey and sampler ID

## To 20170418

## General:

Performed server updates.

Update ForSite forum.

## Database and coding:

Periodic check-in of databases into source control

Work on the Datasets Control Desk (controldesk.php)

Handling “Site” and “Survey”:

Changing code server-side to handle “year\_start”, “year\_end”, “site” and “survey” arguments

Making analogous changes in controldesk.php

## To 20170411

## General:

Performed server updates.

## Database and coding:

Periodic check-in of databases into source control

Work on the Datasets Control Desk (controldesk.php)

Automatic population of graph-related checkboxes complete.

Changed server-side call to return column names and data.php URL for CSV in one data block to reduce number of remote calls from two to one.  
 Javascript HTTP asynchronous call to `getMonitoringDataColumnNamesAndDataPhpUrlString` now doesn't use jQuery or other bulky frameworks.  
 Control Desk (`controldesk.php`) now has "Select All" and "Unselect All" buttons for all displayed analyte data series.

To 20170404

General:

Performed server updates.  
 Updated ForSite forum.

Database and coding:

Periodic check-in of databases into source control  
 Work on the Datasets Control Desk (`controldesk.php`)  
 Automating population of graph-related checkboxes based on calls to tables in "monitoring" and "information\_schema" databases  
`DataPhpURLGenerator.php` written to return data-column names to JavaScript  
 Also generates a data.php URL to create a CSV data file to feed into a Dygraphs graph  
 Working on a Javascript HTTP request to `DataPhpURLGenerator` that doesn't use jQuery or other bulky frameworks.

To 20170328

General:

Performed server updates.  
 Updated ForSite forum

Database and coding:

Periodic check-in of databases into source control  
 Work on the Datasets Control Desk  
 Figured out how to zoom in on date ranges and zoom back out  
 Graph now displays scatter plot rather than a line plot  
 Checkboxes now toggle on and off series of data points  
 Working on automating population of graph-related dropboxes and checkboxes based on calls to tables in "monitoring" and "information\_schema" databases

To 20170321

General:

Performed server updates.  
 Tidied up ForSite forum; updating some threads, moving old ones to "Concluded" boards.

Database and coding:

Periodic check-in of databases into source control  
 Fixed bug where harvest calculations always resulted in zero  
 Got all elements with greater-than-zero `is_displayed` flags to appear in the Biomass Harvest part of the Analysis pane of `calculator.php`, including blanks  
 Started work on the Datasets Control Desk

To 20170307

General:

Performed server updates.

Database and coding:

Periodic check-in of databases into source control.

Altered harvest values returned by AllometricEquationHandler2.php so that they are negative (net loss to ecosystem)  
 Fixed display of FloralWhite colour in tables in calculator.php  
 Also did a small tidy up of forsite.css  
 Completing addition of Nutrient Balance row to Element-exchange table in calculator.php webapp

To 20170228

General:

Performed server updates.  
 Posted scans of sketches from meeting to the ForSite forum.

Database and coding:

Periodic check-in of databases into source control.  
 Altered leaching values in forsite.element\_exchanges database so they are now negative.  
 Added "WHERE ...AND ... OR" SQL processing to TableFromDb.php.  
 Greater speed: TableFromDb.php now uses a WHERE clause instead of retrieving and then assessing every row in the table  
 url parameters to data.php can now have multiple values  
 Got Dygraph graphing package displaying multiple years of data returned from data.php  
 Safari was adding a .html suffix to CSV downloads from data.php. To fix this, we now set Content-type in header, as well as Content-Disposition.  
 Adding Nutrient Balance row to Element-exchange table in calculator.php webapp

To 20170221

General:

Performed server updates.  
 Documented recent developments on the ForSite forum and moved old threads to the "Concluded" boards

Database and coding:

Periodic check-in of databases into source control.  
 Made HTTP link to ForSite website in the 'pages' database relative rather than absolute.  
 Established safety procedures to prevent loss of very recent data when running a script to delete and repopulate a database.  
 Footer in data.php pages shows an operational CSV link now  
 data.php takes a parameter that changes the stream it returns from HTML to comma-separated data format  
 Forcing download of generated CSV files, rather than having them potentially loaded into a browser page.  
 Now clicking on the CSV link on a data.php html page will result in the user being prompted to download the CSV, and the file will have an appropriate name, based on the database and table names.  
 Trying out Dygraph graphing package in controldesk.php, a page that should evolve into a Control Desk webapp for datasets  
 Have established that Dygraph can use the CSV files generated by data.php

To 20170214

General:

Performed server upgrades and updates.  
 Modified ufw firewall to re-enable ssh access from 3 mobile network.

Database and coding:

Periodic check-in of databases into source control.

Renamed "datasets" database to "monitoring":  
 Fixed links that broke subsequently; modified centralised .inc file to propagate new database name to all database functions in PHP code.  
 Ongoing work in using the new forsite.tree\_parts\_elements table to add a Harvest row to the Element-exchanges table in the Management pane of calculator.php:  
 Completed JavaScript function in calculator.php to transfer information from "Biomass harvest" table to the bottom of the Element-exchange table.

To 20170208

General:

Performed server upgrades and updates

Database and coding:

Ongoing work in using the new forsite.tree\_parts\_elements table to add a Harvest row to the Element-exchanges table

Debugged function to calculate biomass totals of specific elements for each harvest scenario

Added summary in "Biomass harvest" table in Analysis Pane for percentage of tree parts made up of each element displayed

Added summary in "Biomass harvest" table of how many kg of each element will be removed by the specified harvest of the specified tree species

Adding JavaScript function to calculator.php to transfer the information from "Biomass harvest" table to the bottom of the Element-exchange table in the Management pane.

To 20170131

General:

Performed server upgrades and updates

Database and coding:

Ongoing work in using the new forsite.tree\_parts\_elements table to add a Harvest row to the Element-exchanges table

Added function to calculate biomass totals of specific elements for each harvest scenario

Debugging that function

Adding JavaScript function to calculator.php to transfer that information for each displayable element to the Element-exchange table in the Management pane.

To 20170424

General:

Performed server upgrades and updates

Updating entries on ForSite forum

Database and coding:

Ongoing work in using the new forsite.tree\_parts\_elements table to add a Harvest row to the Element-exchanges table

Added functions to calculate biomass totals for each harvest scenario

Added const entries to AllometricEquationHandler2 to denote tree parts removed in each harvest scenario

Added function to make a table showing percentage of biomass represented by each element flagged for display in the database

To 20170117

General:

Performed server upgrades and updates

Updating entries on ForSite forum

Database and coding:

Decomposed forsite.tree\_parts\_elements so that it makes reference to the forsite.elements table, rather than having columns with hardcoded element names

Work on Analysis pane in calculator.php (client-side and server-side):

Element-exchange table in Analysis pane now has unit written once, and centred using colspan.

Server now returns "--" to Analysis pane when no data available for an element-exchange that has been flagged for display

Fixed bug where "--" elements later in the display order were not being displayed

Ongoing work in using the new forsite.tree\_parts\_elements table to add a Harvest row to the Element-exchanges table

To 20170102

Database and coding:

Made each allometric coefficient a const at the top of the source code in AllometricEquationHandler2, so easier to modify for person maintaining the site.

Critical Biomass Removal calculator is now using new, decomposed tables (forsite.coords, forsite.elements, forsite.exchanges and forsite.element\_exchanges) to structure the retrieval of element-exchange values rather than using than look-up text files, as it did previously:

Entry for forsite.coords table added to

forsite.current\_statuses\_of\_griddatatables table, and made "live".

Added function to ElementExchangesWithinDataGridCell object to get "label" value from forsite.coords table, and then retrieve all relevant element-exchange combinations from the new, decomposed tables.

Updated forsite.element\_exchanges table to change a large set of element\_id values that had ended up pointing to the wrong element.

Got calculator.php to order display of elements and exchanges based on an is\_displayed column: 0 means "not displayed", and then order of all other rows and columns based on ascending values of is\_displayed.

To 20161214

General:

Performed server upgrades and updates.

Database and coding:

Continued decomposing the forsite.fluxes table

Completed forsite.coords (coordinates table: label with easting and northing)

Completed forsite.element\_exchanges (categorised flux of elements in each data grid-cell)

Documented the new tables on the ForSite forum

Started work on making the Location pane in calculator.php use the new tables instead of forsite.fluxes

Work on ForSite calculator page: made number of place to which to round allometrically derived output a constant in AllometricEquationHandler2, so easier to modify for person maintaining site

To 20161207

General:

Performed server upgrades and updates.

Database and coding:

Moved topics to correct boards on the ForSite forum  
 Started decomposing the forsite.fluxes table  
 Created elements and exchanges tables  
 Started work on coordinates table  
 Work on ForSite calculator page:  
 Refined dynamic open/close icons on clickable headers in Analysis pane  
 Rounded allometrically derived output to two decimal places

To 20161130

General:

Performed server upgrades and updates.

Database and coding:

Further tidied up the forum

Fixed bugs in editPage.php:

Clicking cancel now does not save provisional work

Clicking cancel does not prompt you for a password

Work on ForSite Calculator page:

Added units to Element-exchange table in Analysis pane

Make superscript-adding JavaScript function work with negative numbers  
 to use power-of-minus-one notation rather than slashes in presentation  
 of units

Added geolocation of point selected on map to Analysis pane:  
 latitude/longitude and Irish Grid Reference

Added dynamically changing open/close icons to clickable header in each  
 pane

To 20161123

General:

Performed server upgrades and updates.

Database and coding:

Tidied up the forum, moving old topics to the "Concluded" board, and  
 updating outdated information

Work on ForSite Calculator Analysis pane

Proper table format, with bolding

Font colours in Element-exchange box now match those in Biomass  
 harvest box

"Close table"/"Close message" link removed

Added on-the-fly addition of superscript to units via JavaScript on the  
 client side

To 20161116

General:

Performed server upgrades and updates.

Database and coding:

getAllometricTreeData.php now includes units in the formatted string of tree  
 biomass types and allometrically derived values.

Fixed some bugs in presentation code of Analysis pane.

Analysis pane now shows message when incorrect parameters sent to the  
 server from Management pane.

Formatted allometric data returned from sever into a table in Analysis pane.

To 20161111

General:

Performed server upgrades and updates.

Database and coding:

getAllometricTreeData.php now returns a formatted string of tree biomass types and allometrically derived values

That server-supplied data is now preserved in global variables in the JavaScript on the calculator.php page in order to save retrieving data from the server more than once in the course of a Critical Biomass Removal calculation.

The server-supplied data is now displayed in the Analysis pane of calculator.php, along with the data returned from the Location pane (also stored in global variables).

To 20161102

General:

Added topic to ForSite forum to summarise advice from UCD IT Services/ Networks about Linux server hardening.

Performed server upgrades and updates.

Database and coding:

getAllometricTreeData.php page now gracefully handling mutually exclusive options of instantiating AllometricEquationHandler2 objects with either Diameter Breast Height or Basal Area

All member variables set and calculated on AllometricEquationHandler2 object.

Bug that was resulting in zero values being returned for some calculations now fixed.

Looking at how to persist server-supplied data (via getAllometricTreeData.php) in the JavaScript on the calculator.php page to save retrieving data more than once in the course of a Critical Biomass Removal calculation, and what structures are available so that we have a flexible approach that doesn't require writing more JavaScript when new data columns are included in the calculation.

To 20161026

General:

Updated ForSite forum, closing and updating bugs and desired features.

Database and coding:

Increased the memory limit for the PHP processor in Apache, as previous limit was causing some pages using data.php to quit before serving the completed page.

Fixed a bug in data.php that was causing incorrectly sized column headings when displaying a column contained HTML formatting.

Completing and debugging AllometricEquationHandler2, hooking extra features up to and tidying up the appearance of the calculator.php webapp.

To 20161019

General:

Updated the summary on the ForSite forum of the recovery steps taken to get a fully functioning installation of Ubuntu 16.04 onto the ForSite server after the severe crash in August

Wrote a summary on the ForSite forum of how to get the forum to use PHP5.x instead of the more modern but currently forum-incompatible PHP7.0

Wrote a summary of how the current firewall on the ForSite forum was set up, and its current settings

Database and coding:



Read documentation related to the generalised documentation structure of a Standard Operating Procedure, and created an appropriate prototype database to represent a SOP, for further discussion and development

To 20161006

General:

Wrote up a summary on the ForSite forum of the recovery steps taken to get a fully functioning installation of Ubuntu 16.04 onto the ForSite server after the severe crash in August

Database and coding:

Creation of AllometricEquationHandler2.php, based on the document "ForSite Specification for Estimating Biomass Fractions"

Hooking up AllometricEquationHandler2.php to calculator.php (Critical Biomass Calculator) page. Bug-fixing needed, very rudimentary display, and not all outputs appear on pages yet.

Fixed bugs in and refined base class for all Allometric Equation Handler objects (AllometricEquationHandlerBase.php)

To 20160921

General:

Set up Uncomplicated Firewall (ufw) on ForSite server with a minimal set of rules:

default: allow outgoing traffic, deny incoming

allow incoming on port 80 (HTTP traffic)

allow incoming on port <port removed for security> (for SSH) from the range of IP addresses I use

allow traffic on some ports that dropbox might require, other than 80

Fixed autorestart script that restarts dropbox daemon after reboot

Database and coding:

Restored the "datasets" tables lost during the server crash; used a local copy on the development netbook

Did a check-in into Mercurial revision control of most recent databases (mysql dumps)

Working on Management Pane handler for ForSite Critical Biomass Calculator

Wrote base class to contain all common code between different Allometric Equation Handler objects

Created placeholder Harvest Type database

To 20160906

General:

Recovery from catastrophic server crash (INACCESSIBLE\_BOOT\_DEVICE)

Installed Ubuntu 16.04 Server from DVD onto the ForSite server machine

Wiped both disks in the RAID array to prevent autodetection of previous partitions

Trial and error of various combinations of Striped and Mirrored arrays, using software and hardware RAID arrangements, and various styles of installation. Finally did a hardware configuration of a RAID 1 arrangement, followed by a guided Ubuntu Server installation, followed by booting in from a Lubuntu installation disc and running a boot-repair application (ppa:yannubuntu/boot-repair). Installed Lubuntu Desktop to fix a graphical driver problem, and to give a graphical interface to users.

Determined IP address of the physical machine on which the server resides

Got SSH working

Database and coding:

Set up LAMP (Linux-Apache-MySQL-PHP) server  
 Set up old housekeeping cronjobs from previous server installation  
 Restored Mercurial version control from previous server installation.  
 Installed Simple Machines Forum and restored ForSite forum from database backups. Had to also install PHP5.6 on Ubuntu 16.04; SMF2.0.11 incompatible with the PHP7.0 software that is the default in 16.04

To 20160824

General:

Continued investigating INACCESSIBLE\_BOOT\_DEVICE error  
 Tried Windows 7 installation disc repair tools. No success.  
 Downloaded and tried Partition Wizard  
 Did surface scan of partitions. Physically seem ok, but filesystem not recognised (System Reserved Partition was "unallocated", main partition was "Other"; should be "NTFS")  
 Downloaded and created Windows 10 Installation Disc  
 Tried Start Up Recovery. Didn't work.  
 Investigated possibility of installing Ubuntu as main OS on server, and running Windows 7 in a VirtualBox. Thomas Cummins agreed it was viable.  
 Made a note of all I could remember of home directory structure for user "forsite" on the old installation of Ubuntu in the VirtualBox in Windows, and what housekeeping cronjobs had been in place.  
 Made an installation disc of Lubuntu 16.04.1 AMD64. Lubuntu itself installed, but bootloader won't install, because of added complexity of RAID disk array. Will make an Ubuntu Server installation disc, which has added functions to cope with RAID arrays.

To 20160812

Database and coding:

Updated ForSite forum with discussion of scheduled improvements to ForSite Calculator webapp  
 Manually synced ForSite databases to development netbook, so development environment better matches live environment  
 Rationalised database names  
 Changed name of legacy "forsite" database to be "forsite\_old"  
 Changed name "arcgis\_geo\_data" database to "forsite"  
 Fixed some breakages in automated serverside housekeeping that ensued  
 Improvements to first and second pane in ForSite Calculator webapp  
 Database element-exchange table that results from clicking map in first pane now appears in third pane ("Analysis" pane)  
 Renamed second pane from "Harvest" to "Management" (also in PHP object names)  
 Restricted tree dropdown list to trees flagged in database  
 Added controls to the Management pane  
 JavaScript for radio buttons to enable and disable two mutually exclusive inputs

General:

Fixed Bridged Network Adapter problem on ForSite Windows Virtualbox host after upgrade to Windows 10  
 Investigated INACCESSIBLE\_BOOT\_DEVICE error that subsequently arose (ongoing)  
 Ran chkdsk on Windows partition  
 Ran BcdBoot to try and help OS find the boot partition

To 20160929

Database and coding:

Got PHP object AllometricEquationHandler returning full equation output to second pane (was “Harvest” pane, now “Management”) in calculator.php

Evaluation of bug in Google Chart webapp (dynamic\_graph\_example\_json.php), and evaluation of possible replacement of Google Chart with Dygraphs

General renaming of ForSite databases, tables and columns to more appropriate names, and fixing ForSite webapps that break due to renaming

Summarising meeting in UCD on ForSite forum

To 20160715

Database and coding:

Completed PHP object, AllometricEquationHandler, that encapsulates logic of calculating biomass and hence nutrients from allometric equations, and handles retrieval of allometric parameters and correction factors from database

Hooked AllometricEquationHandler up to second (“Harvest”) pane in calculator.php with rudimentary display

To 20160701

Database and coding:

Completed table in database with tree species, common names and scientific names

Completed table in ForSite database with dummy parameters for allometric equations for each species (dummies based on realistic parameters found in the literature, and outcomes of equations were sanity-checked against real values in literature)

Completed table in database with dummy factors for each species to extrapolate from kg of biomass of tree parts to nutrients stored in tree (N, P, K, etc.) (dummies based on realistic values found in the literature)

Refining PHP objects that encapsulate logic of calculating biomass and hence nutrients from allometric equations

To 20160617

Database and coding:

Created tables in ForSite database with parameters for allometric equations for each common species

Created PHP objects to encapsulate logic of calculating biomass from allometric equations

General:

Finding suitable general allometric equations for above-ground biomass and nutrients for bark, branches, foliage and stemwood. Using these as placeholders until I have real allometric equations for common Irish tree species.

To 20160603

Database and coding:

Fixed non-standard use of two classes in HTML div

Improved look of exchange-element table.

A less revealing error message (no mention of specific databases or tables) appears under Google Map in calculator.php when the user clicks outside Ireland, if the database error messages are set to be not verbose in configuration file

Message under Google map now has [Close message] instead of [Close table] when no data presented

Removed "ERROR:" from the start of the message under Google Map in Location pane.

Adding list of trees to Harvest pane, along with associated real or dummy (placeholder) biomass and nutrient allometric equations to Harvest pane (ongoing).

To 20160509

Database and coding:

Refined the dynamic table of exchanges and elements under the Google Map on ForSiteToolPage.php

Neater display of data

Behaviour of link to close element-exchange table now complete and logical

Element-exchange table shows appropriate message when portion of map with no corresponding data is clicked

Added a question to registration process on ForSite forum to stop Spambots trying to register with the ForSite forum

To 20160422

Database and coding:

Wrote up an an explanation on the ForSite forum of the ArcGIS look-up tables in the arcgis\_geo\_data database

Got ForSiteToolPage working with look-up tables (the tables now determine which dataset is "live", not PHP code)

Sorted out "grey tile" problem when Google Map tile is loading on

ForSiteToolPage.php, by making the map tile be open when the page loads (with the other tiles closed, as before)

New configuration file for ForSiteToolPage.php, determining what columns are displayed from the "live" data table, and what exchanges and elements those columns and fields correspond to

Display a simple table of exchanges and elements under the Google Map on ForSiteToolPage.php

Added a "Captcha" test to stop Spambots trying to register with the ForSite forum

To 20160408

Database and coding:

Created perl-based cronjob that makes a look-up table in arcgis\_geo\_data database that lists all the grid-cell-based data tables. This is used as a foreign-key constraint on a table that lists a table of statuses ("live", "archive", etc.) so the ForSite Tool code knows where to get the most relevant geographically defined element-exchange values.

Created new configuration file that allows an administrator to change the elements used in the calculation of Critical Biomass Removal without editing any code.

Meeting with Thomas Cummins to discuss the form and content of the ForSite Tool page (ForSiteToolPage.php)

General:

Cleared out boot sector on ForSite server

To 20160318

Database and coding:

Refined rough proof of concept of ForSiteToolPage with collapsible panes:

Placed clickable map with Google Pin and grid-cell outline into first collapsible pane.

Refined appearance of clickable map, and fixed intractable bug where the map kept appearing as a blank, grey rectangle.

To 20160303

Database and coding:

Finishing touches to DataGridCell object (encapsulates code to convert between latitude/longitude, Irish Grid References and Irish Grid Numbers).

Piped Jim Johnson's new grid-cell-based element-exchange data into the ForSite `arcgis_geo_data.fluxes` table.

Completed rough proof of concept of ForSiteToolPage with collapsible panes.

Formulated plan to make a look-up table for the "live" element-exchange tables in the `arcgis_geo_data` database, and constrain the contents of that table so it cannot display names that are not those of real element-exchange tables.

Background reading on Cascading Style Sheets.

General:

Meeting with Thomas Cummins offsite to discuss user interface of ForSite tool, especially collapsible panes for optimal use of screen real estate

To 20160122

Database and coding:

Finished optimisation of TableFromDb object to improve data download times

Automated adding backticks to table names and used query string escaping to prevent SQL injection

Optimised `dynamic_graph_example_json.php` to allow faster graphing and graph updating

Changed `page.php` so it doesn't process images when Image column empty in database

Same for ImageCaption column

Removed redundant code shared between `editPage.php` and `page.php`  
`editPage.php` now returns user to `page.php`, which shows an edit-confirmation message

Encapsulated code to convert between latitude/longitude, Irish Grid References and Irish Grid Numbers into a DataGridCell object.

Also included option to get coordinates of the four corners of the grid cell in all three formats

Used DataGridCell object to show user the outline of the relevant grid cell when they click on the map in `latlong.php`

To 20151211

Database and coding:

Google Map: webapp can now return data from the ForSite database that is relevant to a point selected by the user on a map

Google Chart: demo using PHP, JSON and AJAX to create a dynamic graphing webpage with minimal reloading now works.

Overlaying of multiple data series now works too.

Optimised `TableFromDb.php`, which is code base for Google Chart demo and `data.php` page for displaying ForSite databases in a browser. Results in quicker loading.

To 20151127

Database and coding:

Completed script to pipe exported ArcGIS data files into ForSite database

Google Map Web App can now take coordinates and return Irish Grid Numbers in addition to older Grid References

**Assessing Google Charts:**

Completed demo using PHP to write Google Chart JavaScript on the fly  
Almost completed demo using PHP to return a JSON and AJAX data file to Google Chart

This second approach would be allow more dynamic presentation of data and looks more promising

**General:**

Cleared out boot mount on ForSite server

To 20151106

**Database and coding:**

Refined web app with Google Map functionality embedded.  
Server can now take coordinates and return Irish Grid References  
Backed up database MySQL dumps into version control  
Fixed some bugs related to production of PDFs on the fly  
Updated the ForSite forum with discussion where appropriate

**General:**

Finished updating the ForSite forum to a more recent, more secure version.  
Wrote a script to clean out tens of thousands of Windows registry entries on main Windows machine to allow ArcGIS to be installed.  
Created a back-up copy of the virtual machine that the ForSite website runs on

To 20151023

**Database and coding:**

Created web page with embedded Google Map that allows the user to put a marker on the map, get latitude/longitude and LEN Irish Grid reference (LEN part still to be completed)  
Wrote out full discussions on ForSite forum about file-parsing problems, data anomalies and suspicious entries in ForSite databases populated from ICP data files

**General:**

Started updating the ForSite forum to a more recent, more secure version.  
To be completed shortly.

To 20151006

**Database and coding:**

Sanity-checked SS (soil solution) 2011 data, corrected and transferred to ForSite database  
Noted file-parsing problems, data anomalies and suspicious entries using UCD\_Comments column in data tables in ForSite database.  
Further discussion to follow on ForSite forum  
Completed documentation to explain use of scripts to parse, merge and pipe ICP data files into ForSite database. Explanation duplicated on ForSite forum  
Created cronjobs to automatically back up all ForSite data once a week, including the ForSite forum

**General:**

Updated operating system modules on ForSite server  
Phone meeting with Thomas Cummins to discuss progress and direction

To 20150911

**Database and coding:**

data.php web page to show ForSite data tables concisely to team members  
Looked at official ICP data files at forestdata.org

Sanity-checked ICP DP (deposition) data, corrected and transferred to

ForSite database:

2007-2009 and 2011 (2010 data not approved by ICP)

Sanity-checked SS (soil solution) data, corrected and transferred to ForSite database: 2007-2010 (2011 data to follow)

To 20150707

Database and coding:

Script for parsing ICP data text files and creating comma-separated data files (.csv files)

Script for merging .csv files created by parsing script

Script for piping merged data files into database

Testing scripts, sanity-checking output, sanity-checking data in database

Identifying data collisions in shared columns between parsed files and resolving collisions

To 20150525

Database and coding:

Automation of transfer of data collated by ICP (International Co-operative Programme on Assessment and Monitoring of Air Pollution Effects on Forests)

Analysis of ICP text-based survey data files

Finding information in ICP documentation regarding column widths in ICP text files

Writing and fine-tuning Perl script to parse ICP text files preparatory to piping into database

Server:

Installing Simple Machines Forum at forsite.ucd.ie for structured and stored discourse on ForSite issues

To 20150427

Database and coding:

ForSiteTool class to encapsulate logic of calculations of Critical Biomass Removal and keep HTML presentation code entirely separate

Created base ForSiteDBAccessor class to have a common approach of database error handling for all database-accessing classes

Created list of database errors with simplified, less revealing messages so as not to reveal inner structure and workings of ForSite when live page.php and page\_pdf.php now behave correctly if page parameter is omitted, or if can't find a matching row in the database

forsite.php now displays blanks instead of zeros when no scenarios selected

Re-did MySQL dumps to have up-to-date scripts to recreate database

Exploratory work in automated transfer of ICP data in text files to database

Security:

Ongoing work implementing PreparedStatements

Server:

Fixed persistent boot failure on server

To 20150320

Database and coding:

Fixed and tidied ForSite Tool page and made Critical Biomass Removal calculations extensible via a configuration file

Added custom scripts to version control, including script to back up entire project

Fixed minor line-ending/end-of-file issue present in many files

Fixed a presentation issue on Firefox: as a follow-on, started making all existing HTML well-formed, to prevent other unpredictable behaviour  
Took erroneous and blank entries out of databases and backed up databases again  
Stopped newPage.php making blank entries in database

Security:

More password consolidation (complete) and more use of Prepared Statements (ongoing)

To 20150215

Database and coding:

Creation of scripts to re-create databases  
Installation of version control for code, images and database scripts  
Commencement of separating presentation logic and database logic  
Commencement of changing PHP to object-oriented style for maintainability  
Ongoing consolidation of database access details and passwords into one file  
Setting flag so site will display error messages appropriate to development or deployment

Server maintenance:

Script to start Dropbox daemon on startup  
Update of server-side OS, including Hardware Enablement Stack  
Cronjob to back up version control at 3am every day

PDF report generation from MySQL data:

Formatting based on hypertext markup already in text stored in database  
Placing of images into a stream of text

Security:

Commencement of changing string-based SQL statements to safer prepared statements (less vulnerable to SQL injection)

To 20150120

Test Environment:

PHP, MySQL installation, configuration

PDF report generation from MySQL data:

Proof of concept: test code

Security:

Consolidation of database access into one file

Background research:

standard PHP methods to counter SQL injection and other hacks.

To 20141203

Server optimisation:

virtual hard drive resizing  
boot partition clearing

Secure shell service:

updating modules  
enabling remote access

To 20141109

Investigation of technologies, databases and programming languages currently in use by ForSite

Preparation of off-site development environment