

Legal

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Prerequisites

The plugin requires a working and licensed copy of bcAdmin 2.0.

Redaction

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WKA-Plugin

Installation

For bcAdmin 2 being able to load the plugin, it has to be located at the following folder inside the user folder:

~/Library/Application Support/bcAdmin2/PlugIns/

If necessary the folder has to be created beforehand. As soon as the plugin was copied to this folder, bcAdmin 2 loads it on each start and it can be started via File -> Plug-Ins->Bat/Environmental Activity.

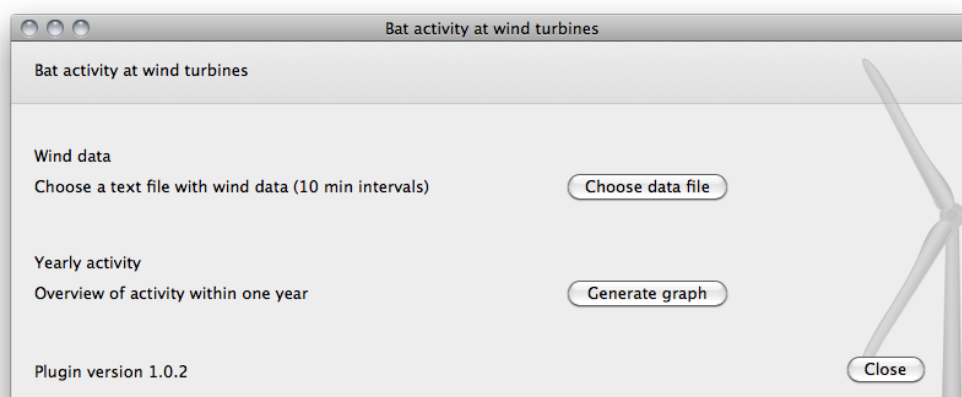
Prerequisites

You'll need a CSV formatted file with entries for date/time in one and wind speed or temperature in the other columns. Using this data the plugin correlates environmental influence with bat activity. Further columns can be in place and do not disturb the correlation process. The data has to be sorted by date with the youngest entries at the end of the file.

Features

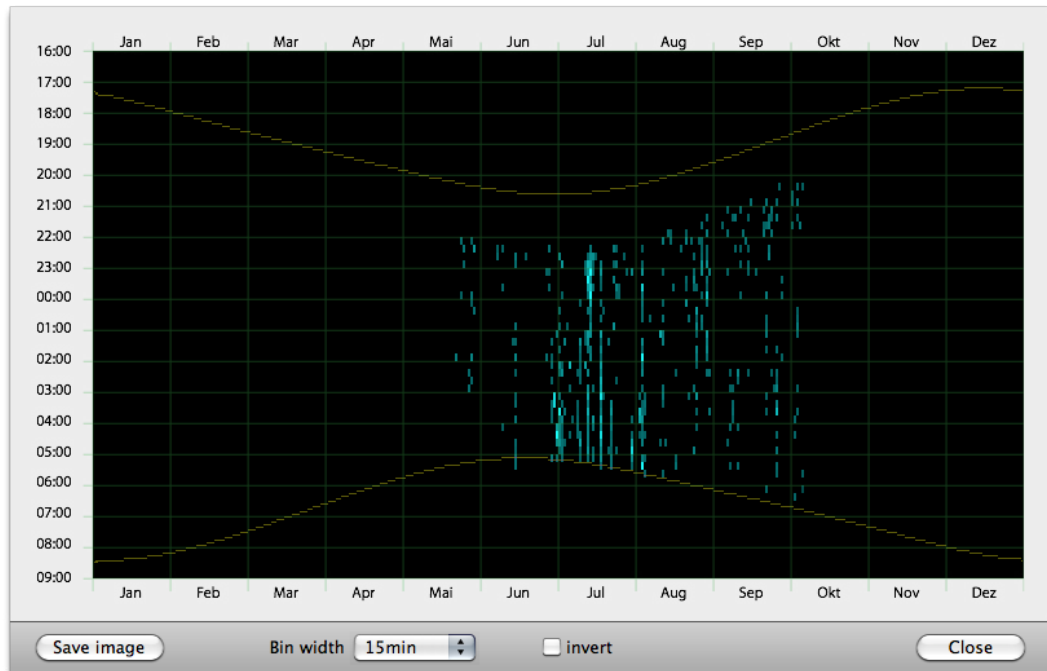
The plugin supports you in analyzing bat activity recorded at wind turbine nacelles. It allows to print a graph showing the activity over the whole sampling period as well as graphs giving a correlation of bat activity with different environmental data (for now wind speed and temperature).

Before using the plugin you have to select all recordings that should go into the correlation in bcAdmin. Make sure the recordings are sorted in chronological order (youngest at the end) before proceeding. Then, after the selection is in place, you can start the plugin via **File -> Plug-Ins -> Bat/Environmental activity** . A new window opens:



Yearly activity

A simple graph shows the activity over the sampling period (maximum one year). All available recordings are pooled for each time slot and displayed similar to a sonagram. The color intensity indicates the amount of pooled recordings. The time slots can be selected from 5 minutes to 60 minutes.



Correlation with environmental data

The plugin's main function is the correlation of bat activity with different environmental data sets. To start this correlation, a CSV file containing date/time, wind speed and/or temperature has to be selected first. Environmental data must be available as average over 10min intervals. After selecting such a file, you can set different parameters for reading/interpreting the contained dataset.

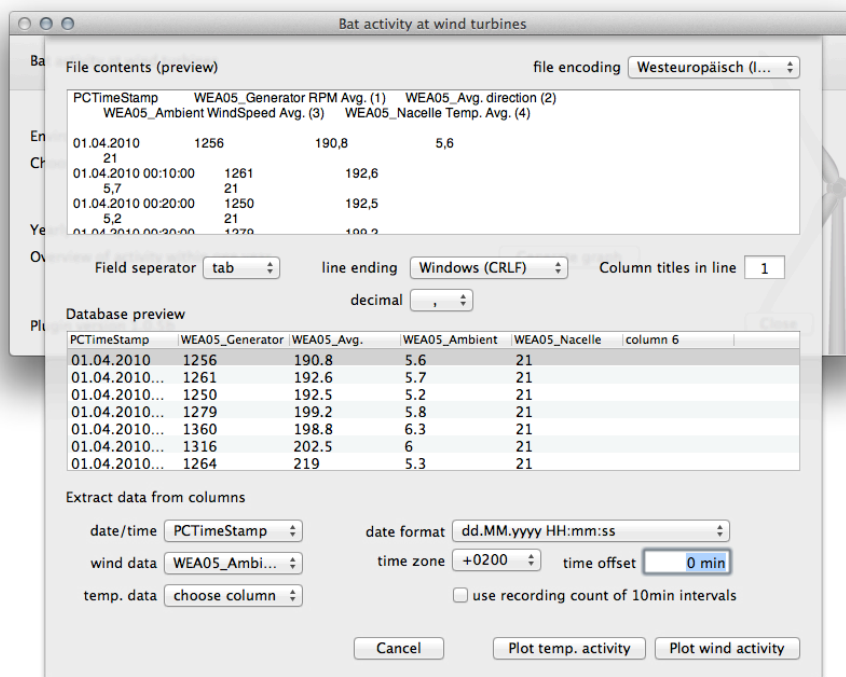
Basis of correlation

The correlation can be done using two different approaches. One is binary (activity YES/NO within the 10min interval), while the other cumulates all recordings within the 10 min interval. In the second step, the environmental parameter for this 10min interval is read and the overall result is summed up. Using the binary approach, the amount of recordings within the 10min interval plays no role. This assumes that a single bat produces a series of recordings while flying in nacelle height. The graph at the end of this manual shows both, a graph using binary and a second using cumulative approach.

Settings and usage

For correctly interpreting the CSV file you can set the field delimiter, the decimal delimiter as well as the line feed type. Furthermore you have options to set the correct date format. To start the correlation, the appropriate columns have to be selected as well. Bear in mind that you may have to adapt the wind turbines timezone as well as potential time shifts between batcorder and wind turbine. By selecting „use recording count of 10min interval“ you can activate the cumulative approach.

If all data is set correctly, you can correlate either wind or temperature with bat activity using the two buttons on the lower right. After the calculation, a graph is shown. The original data of this graph is also copied to the clipboard for further use.



Display of results

The correlation produces a graph which shows the cumulative bat activity above the selected environmental dataset. From this plot you can see which amount of activity is present if different wind speeds act as threshold for turbine activation.

