

The HiWi's Guide to the Booklet Builder

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Welcome to the Booklet Builder Guide! It is here to make your life easier.

1 What is LaTeX and why bother using it?

This booklet builder is written in \LaTeX . \LaTeX is a high-quality typesetting system that is routinely used for scientific documents, as well as almost any form of publishing.

Its power lies not only in its ability to consistently output files in exactly the format you envisioned (no more of that figures-emigrating-to-Hawaii-when-adding-a-single-letter-somewhere!), but also in its capacity to automatise tedious, repetitive tasks like building a species list.

If you're not used to the modular nature of \LaTeX , the many output files with obscure endings may look a bit daunting at first — but don't worry, it's easier than it seems and you'll get the hang of it in no time.

If all goes well, you will never have to touch the source code for the booklet builder beyond changing the occasional file path anyway, but in case things do go wrong, need tweaking, or you're bored, I have included a crash course in section X.

2 What do I need on my computer?

1. A LaTeX editor

\LaTeX is a markup language, so you could technically write your source code in any text editor, but in order for your code to compile and turn into a shiny pdf document, you need a dedicated \LaTeX editor.

- For smaller files (with, say, 50 different species), it should be sufficient to use an online \LaTeX editor like **Overleaf** (<https://www.overleaf.com/>). Overleaf has the advantage of being free (with some limitations) and collaborative, allowing multiple people to work on the same project at once, and you don't need to install anything. The downside is that once your file exceeds a certain size or you want more than two collaborators to work on the project simultaneously, you would need to upgrade to a paid version. The University of Bayreuth does not, to my knowledge, provide free premium accounts.
- If the file becomes too large or you want to work on your project locally, you can move to one of the many editors capable of compiling \LaTeX code. I personally like **TeXstudio**, which is a dedicated \LaTeX editor. TeXstudio is open source and cross-platform, meaning that Windows, Linux, and Mac OS users alike should be able to work with it. If you're already working with programming languages like R or Python and already have a preferred integrated development environment (like **Visual Studio** or **Sublime**), you can also use that. This guide will include screenshots of both TeXstudio and Overleaf as examples.

2. Logos

To make the booklet pretty, the title page includes logos of the University of Bayreuth and of the faculty. These files are stored in a folder called **Logos**. It contains the following files:

- **biogeo.jpg**
- **dist_eco.jpg**
- **GCE-Logo.jpg**

- `Uni_Bayreuth.jpg`

3. Files

\LaTeX is modular, meaning that different tasks (like making the title page or listing all species) can be dealt with in separate files. This approach makes it easy to only change what needs to be changed. The master file, typically titled `main.tex`, generally both contains main body of your document and deals with arranging the content from other files with specialised tasks. These files are referenced by their file path and filename, therefore it is important to make sure that you **do not accidentally change the file names**, and that **all files remain in the same folder**.

NOTE: A word on `.csv` files and the importance of checking raw text files. The ending `.csv` is short for *comma-separated value*. These types of files can be opened using spreadsheet programs like Excel or LibreOffice Calc for easy viewing, but internally, they are only simple lines of text without any formatting. Spreadsheet programs recognise certain characters in these text files, usually commas, as cell boundaries, and display them as such — for example, the line

column A, column B, column C

would be displayed as

| column A | column B | column C |

in a spreadsheet program. While commas are typically the default setting for boundaries, it is possible to use a different character like a semicolon. This is the case for the Booklet Builder in order to make it possible to add notes that include commas in sentences. The \LaTeX files for the Booklet Builder are likewise explicitly written to interpret semicolons, not commas, as entry separators. This means that **if you choose to open any of the content files with a `.csv` ending using a spreadsheet program** for easy viewing and editing, please be aware that when you open or close it, the program may ask you about “separator options”. **Make sure you choose “separated by semicolon”**, otherwise any commas in the text will be re-interpreted as cell boundaries by the program, the spreadsheet may re-encode all semicolons as commas, and as a result, the \LaTeX files will not be able to properly interpret your input files. It is an easy mistake to undo, but can be a hassle. If you want to circumvent this issue altogether, troubleshoot, or double check, you can also choose to open `.csv` files in simple text editors like Microsoft Notepad or Kate, although it’s less pretty than viewing it as a spreadsheet.

Spreadsheets may also have trouble displaying special characters like German Umlaute. If this is the case, this should only be a problem when viewing in the spreadsheet program itself. As long as you make sure the character encoding is “UTF-8”, it will not be an issue in the final document output.

- **Content files**

These are the files meant to be changed by you.

- `booklet_title.csv`

This file includes the title of your booklet, location, version, date, author, sources, etc.

- `species_list.csv`

This file is the heart and soul of the booklet! It includes a list of the species, genus, family, author, synonyms, German names, comments, and the file paths for the identification pictures.

- **Typesetting files**

These files compile and typeset all the information stored in the content files. They are written such that you should not need to touch them, unless you specifically want to change the typesetting, the file path of the content files, or need to debug something.

They are stored in a folder called "TeX Files DO NOT TOUCH".

- `booklet_title.tex`

Formats the title page of the booklet.

- `main.tex`

Formats the main body of the text and outputs the final PDF file.

4. Empty folder named `Images`

Each species in the booklet typically includes two identification images. These are often sourced from Flora Helvetica (<https://www.infoflora.ch/en/>) and Rothmaler. You will need to download these yourself (depending on the content of the booklet), and make sure you store them in a folder called "Images", as the filepath in the .tex files specifically references this folder.

And you're all set to start working! The step-by-step workflow is explained in the next section.

3 Workflow

3.1 Changing the booklet title

- Open `booklet_title.csv`. If you open it using a spreadsheet program like Excel or LibreOffice Calc, it should look something like fig. 1a. If, instead, you're using a plain text editor, it should look like fig. 1b. If it doesn't, please refer to the note about `.csv` files in section 2.

| | A | B | |
|----|-------------|---|--|
| 1 | Title | LOCATION species identification booklet | |
| 2 | Location | LOCATION NAME | |
| 3 | Version | VERSION | |
| 4 | Date | DD.MM.YYYY | |
| 5 | Author | AUTHOR 1, AUTHOR 2, AUTHOR 3 | |
| 6 | Responsible | Prof. Dr. Anke Jentsch | |
| 7 | Contact | anke.jentsch@uni-bayreuth.de | |
| 8 | University | Department of Disturbance Ecology and Vegetation Dynamics, University of Bayreuth, Germany | |
| 9 | TitleFig | WIP.jpg | |
| 10 | Source1 | Plant photos by Flora Helvetica. 6th Edition | |
| 11 | Source2 | Plant Sketches by Rothmaler Exkursionsflora von Deutschland, Atlasband, 12th Edition 2013, Springer | |
| 12 | Source3 | | |
| 13 | Source4 | | |
| 14 | Source5 | | |
| 15 | Source6 | | |
| 16 | Source7 | | |
| 17 | | | |

(a) Spreadsheet

```

booklet_title.csv
1 Title;LOCATION species identification booklet
2 Location;LOCATION NAME
3 Version;VERSION
4 Date;DD.MM.YYYY
5 Author;AUTHOR 1, AUTHOR 2, AUTHOR 3
6 Responsible;Prof. Dr. Anke Jentsch
7 Contact;anke.jentsch@uni-bayreuth.de
8 University;Department of Disturbance Ecology and Vegetation Dynamics, University of Bayreuth, Germany
9 TitleFig;WIP.jpg
10 Source1;Plant photos by Flora Helvetica. 6th Edition
11 Source2;Plant Sketches by Rothmaler Exkursionsflora von Deutschland, Atlasband, 12th Edition 2013, Springer
12 Source3;
13 Source4;
14 Source5;
15 Source6;
16 Source7;
17

```

(b) Plain text

Figure 1: `booklet_title.csv`

- Change the **content in column B** (or, equivalently, anything after the semicolon in plain text) as needed. All fields are optional, if a line isn't necessary, just leave it blank. **Do not delete any rows!**
- Save and close the file. If asked, **make sure you save it as a `.csv` file with "semicolon" as separator, and as a `.csv` file. Don't let your spreadsheet program change the file type to `.ods` or `.xls`!**

3.2 Creating a species list

- Open `species_list.csv`. Same `.csv` caveats as outlined in section 3.1 apply.
- For each species, you can now add the **name, author, any synonyms, genus, family, its German name**, and, if you wish, **comments**. All fields are optional and can be left blank. Note: **Make sure not to change the column names!** The `ETXscript` explicitly refers to these names.

- The columns `FileNamePhoto` and `FileNameID` are explained in section 3.3

3.3 Downloading ID images

Each species is typically shown using two images: one photo, and one drawing. Each booklet entry therefore has space for two figures.

- Download your ID pictures. This can be done, for example, via screenshots of the digital Rothmaler, or simply by saving photos from the Flora Helvetica webpage.
- Save all pictures in the Images folder. **Make sure to name each file clearly and without spaces**, e.g. `Acer_pseudoplatanus_photo.jpg` and `Acer_pseudoplatanus_ID.jpg` for the photo and the ID picture, respectively.
- Add the file names to the `species_list.csv` file (see also fig. 2). **It is not necessary to include the full file path as long as each image is stored in the Images folder.**
- Save and close the `species_list.csv` file.

The finished species list should look something like fig. 2

| Species | Author | Synonyms | Genus | Family | GermanName | FileNamePhoto | FileNameID | Comments |
|--------------------------------|--------------------------|-------------------------------|----------------|-----------------|------------------------|--------------------------------------|--------------------------------------|--|
| <i>Anthyllis vulneraria</i> | L. | | Anthyllis | Fabaceae | Echter Wundklee | <i>Anthyllis_vulneraria_1.jpg</i> | <i>Anthyllis_vulneraria_2.jpg</i> | |
| <i>Arabis alpina</i> | L. | <i>Cardaminopsis petraea</i> | Arabis | Brassicaceae | Alpen Gänsekresse | <i>Arabis_alpina_1.jpg</i> | <i>Arabis_alpina_2.jpg</i> | |
| <i>Arabis hirsuta</i> | L. | | Arabis | Brassicaceae | Behaarte Gänsekresse | <i>Arabis_hirsuta_1.jpg</i> | <i>Arabis_hirsuta_2.jpg</i> | |
| <i>Arabis turrita</i> | L. | <i>Pseudoturritis turrita</i> | Arabis | Brassicaceae | Turngänsekresse | <i>Arabis_turrita_1.jpg</i> | <i>Arabis_turrita_2.jpg</i> | |
| <i>Arctostaphylos uva-ursi</i> | L. | | Arctostaphylos | Ericaceae | Immergrüne Bärentraube | <i>Arctostaphylos_uva-ursi_1.jpg</i> | <i>Arctostaphylos_uva-ursi_2.jpg</i> | |
| <i>Arenaria serpyllifolia</i> | L. | | Arenaria | Caryophyllaceae | Quendel-Sandkraut | <i>Arenaria_serpyllifolia_1.jpg</i> | <i>Arenaria_serpyllifolia_2.jpg</i> | |
| <i>Arrhenatherum elatius</i> | (L.) J. Presl & C. Presl | | Arrhenatherum | Poaceae | Glatthafer | <i>Arrhenatherum_elatius_1.jpg</i> | <i>Arrhenatherum_elatius_2.jpg</i> | |
| <i>Artemisia campestris</i> | L. | | Artemisia | Asteraceae | Feld-Belfuß | <i>Artemisia_campestris_1.jpg</i> | <i>Artemisia_campestris_2.jpg</i> | Subsp. <i>campestris</i> for <i>Artemisia_campestris_1.jpg</i> |
| <i>Asperugo procumbens</i> | L. | | Asperugo | Boraginaceae | Schländengäulein | <i>Asperugo_procumbens_1.jpg</i> | <i>Asperugo_procumbens_2.jpg</i> | |

Figure 2: `species_list.csv`

3.4 Compile the booklet

As mentioned in section 2, it is up to you whether you want to use something like Overleaf or work locally. The former may be easier to deal with at the beginning.

3.4.1 If you're working with Overleaf

Once you have set up your Overleaf account, you can start assembling all files.

- Compress all Booklet Builder files into a .zip file. On windows, this is easily done by selecting all files in your file manager, right-clicking it, and selecting Send to → Compressed (zipped) folder. On MacOS and Linux, just select Compress. Your compressed folder should include
 - The Images folder containing your ID pictures
 - The Logos folder containing the university logos
 - The TeX Files DO NOT TOUCH folder containing the typesetting files `booklet_title.tex` and `main.tex`
 - `booklet_title.csv`
 - `species_list.csv`.
- In Overleaf: open a new project using the big green New Project button at the top left. Select Upload Project.

- Select or drag your newly created .zip folder into the popup window.

And that's it! Your project should automatically compile and output a PDF. Your file will include a table of contents at the beginning, which will update automatically if you change anything in your species list. You can download your PDF using the Download PDF icon next to the green Recompile button on the upper right.

3.4.2 If you're working locally

Will update after feedback.

4 Troubleshooting

Will update after feedback.