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. LaTeXis 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 5.

2 What do I need on my computer?

1. A **LaTeX editor**
   LaTeXis 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 LaTeXeditor.

   - For smaller files (with, say, 50 different species), it should be sufficient to use an online LaTeXeditor 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 LaTeXcode. I personally like TeXstudio, which is a dedicated LaTeXeditor. 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. In order for your editor to interpret LaTeXcode, you also need to install TeX Live. This isn't complicated, but unfortunately takes a while (up to four hours) due to its large size. You can install TeX Live from here (`https://www.tug.org/texlive/`), or, if you need some more help or something doesn't work as it should, follow the step-by-step installation guide from the University of Regensburg
     (`https://www.uni-regensburg.de/assets/physik/fakultaet/Studium/LaTeX/Anleitung_Installation_LaTeX_01.pdf`).

2. **Logos**

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 LaTeXfiles 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 LaTeXfiles 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.

3. 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

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

(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 LaTeXscript 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
Anthyllis vulneraria	L.		Anthyllis	Fabaceae	Echter Wundklee	Anthyllis_vulneraria_1.jpg	Anthyllis_vulneraria_2.jpg	
Arabidopsis lyrata subsp. petraea	L.	Cardaminopsis pe	Arabidopsis	Brassicaceae	Arabis petraea		Arabidopsis_petraea_2.jpg	
Arabis alpina	L.		Arabis	Brassicaceae	Alpen Gänsekresse	Arabis_alpina_1.jpg	Arabis_alpina_2.jpg	
Arabis hirsuta	L.		Arabis	Brassicaceae	Behaarte Gänsekresse	Arabis_hirsuta_1.jpg	Arabis_hirsuta_2.jpg	
Arabis turrita	L.	Pseudoturritis t	Arabis	Brassicaceae	Turmgänsekresse	Arabis_turrita_1.jpg	Arabis_turrita_2.jpg	
Arctostaphylos uva-ursi	L.		Arctostaphylos	Ericaceae	Immergrüne Bärentraube	Arctostaphylos_uva-ursi_1.jpg	Arctostaphylos_uva-ursi_2.jpg	
Arenaria serpyllifolia	L.		Arenaria	Caryophyllaceae	Quendel-Sandkraut	Arenaria_serpyllifolia_1.jpg	Arenaria_serpyllifolia_2.jpg	
Arrhenatherum elatius	(L.) J. Presl & C. Presl		Arrhenatherum	Poaceae	Glatthafer	Arrhenatherum_elatius_1.jpg	Arrhenatherum_elatius_2.jpg	
Artemisia campestris	L.		Artemisia	Asteraceae	Feld-Beifuß	Artemisia_campestris_1.jpg	Artemisia_campestris_2.jpg	Subsp. camperstris for Artemisia_campestris_1.jpg
Asperugo procumbens	L.		Asperugo	Boraginaceae	Schlangenäuglein	Asperugo_procumbens_1.jpg	Asperugo_procumbens_2.jpg	

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

- 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`.

- Go to https://www.overleaf.com/ and set up an account.
- 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.

3.5 Workarounds

Now all the tedious leg work is done and you have the backbone of your booklet, you may want to tweak little things, insert exceptions, or add a special page that only your project needs. While this can't be done using the BookletBuilder directly (imagine how bloated everything would get if every eventuality was coded in), there are workarounds that should allow you to do everything you need. If something isn't listed below: get creative!

3.5.1 I can't find an ID image and need to describe my species using words

This is easy: write your description in a text editor of your choice, take a screenshot, and just use that picture instead of the ID photo.

WORK IN PROGRESS

4 Troubleshooting

Will update after feedback.

5 LaTeX crash course

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