



WOLFPACK

APPLICATION
USER GUIDE / MANUAL

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PREFACE:



In collaboration with



and



ABOUT THE APPLICATION:

WOLFPACK is an application that uses mathematical modelling to provide a visual representation that predicts the behavior of the populations of red deer, heck cattle and konik horses in the nature preserve Oostvaardersplassen upon releasing grey wolves, providing an operable user interface for a wide range of users.

ABOUT US:

We are a group of students from Mathematical Engineering at Inholland University of Applied Sciences, Diemen, the Netherlands.

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Julian Besuijen
Martijn de Jong
Carlos Cruz Hermoso
Milla Thittaya Buengbunyuen

ABOUT OOSTVAARDERSPLASSEN:

Oostvaardersplassen is a nature preserve managed by Staatsbosbeheer in the Flevoland, the Netherlands. It is an area of approximately 5600 ha (56 km²), of which 3600 ha is wet (swampland) and 2000 ha dry.

The area is home to wild cattle, wild horses and deer (and many smaller animals.) These large herbivores or their related ancestors are supposed to have occurred in the Netherlands in the distant past and to have helped to shape the landscape. The general idea in the Oostvaardersplassen is to have the animals live in a way as natural as possible; for example, carcasses of dead animals remain, and the animals are not fed in case of food

shortages. However, due to the absence of a top predator; and due to the closed nature of the preserve which restrict the herbivores to migrate, the ecological system has been unbalanced since the beginning.

CONTACT US:

Are you not satisfied with the application? Are you experiencing any problems or have any questions? You can contact us with any inquiry via one of our email addresses.

For technical issues:

Nadine Belhidane – n.belhidane@gmail.com

Carlos Cruz Hermoso – cdcruz@gmail.com

For business inquiries:

Milla Thittaya Buengbunyuen – thittayab@gmail.com

For suggestions and ideas:

Martijn de Jong – martijn97dejong@gmail.com

For general inquiries:

Julian Besuijen – julianbesuijen@gmail.com

BEFORE YOU START:

Please be aware that some of the images provide might not exactly match the application: This is due to changes in versions and to your own system configurations. This does not affect the function of the app.

Make sure to read the guide thoroughly before using the application. You can also re-open the guide at any time when you need help with a specific section from the menu “Help > User Guide”.

WINDOWS USERS:

I. INSTALLING WOLFPACK:

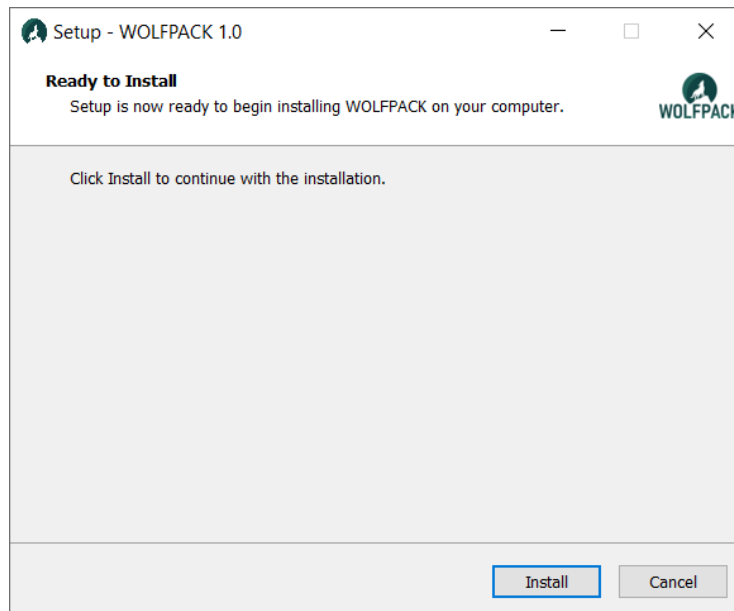
1) SYSTEM REQUIREMENTS:

WOLFPACK requires very minimal system configuration to run properly. But in order to ensure the best experience, the latest version of Java is required. Please visit <https://java.com/en/download/> (Oracle, n.d.) for more information and to download the latest update of Java.

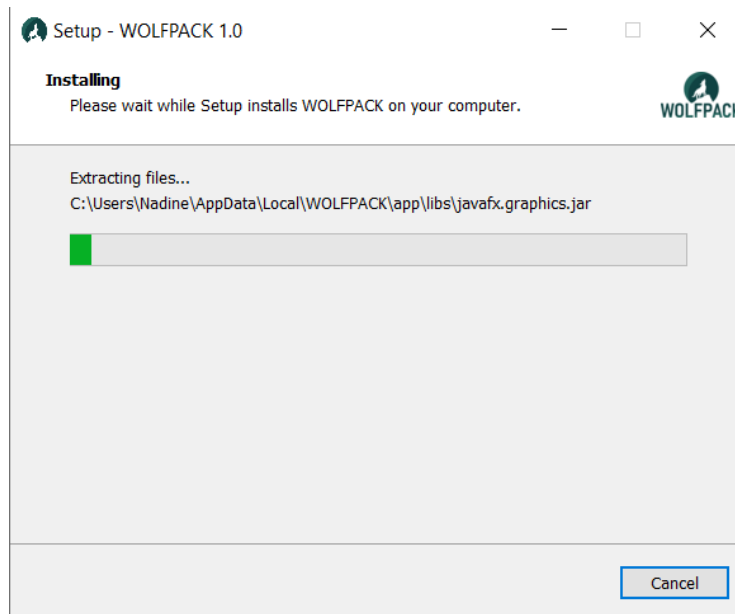
The Windows version of WOLFPACK works best in Windows 10, but is compatible with Windows 7, 8 and 8.1.

2) INSTALLATION GUIDE:

After downloading WOLFPACK-x.x.exe (x.x being your version number), all you need to do is double-click on the app, click on install, and the application will be installed on your computer:

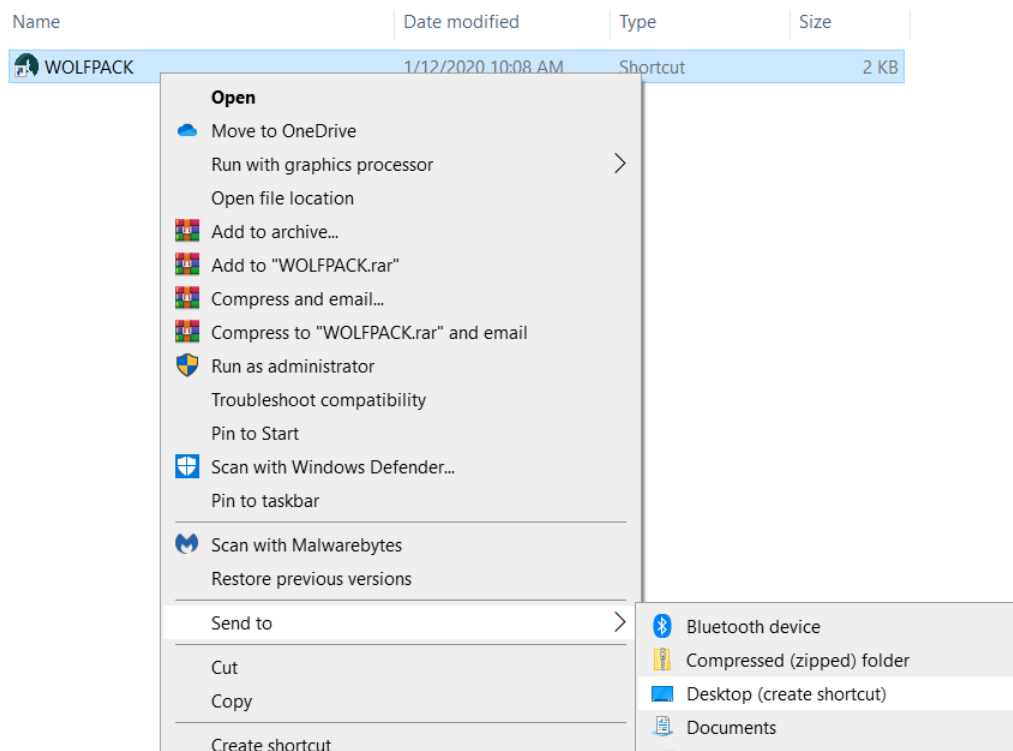


1. Click on install



2. Wait for the installation to finish

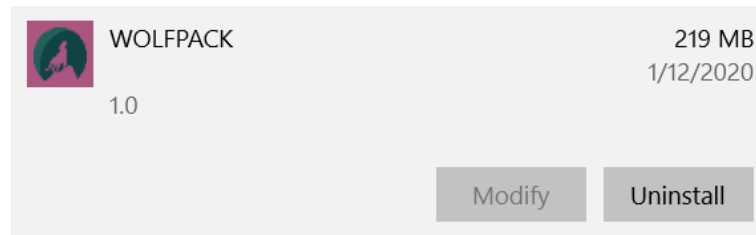
In one click, the application is now installed on your computer. You can find it in your Start bar under “Recently added”. If you want the app to be accessible from your desktop, you can right-click on it, under more, select open file location: this will lead you to the location of the executable file. There you can right-click on the app and select Send to > Desktop (create shortcut).



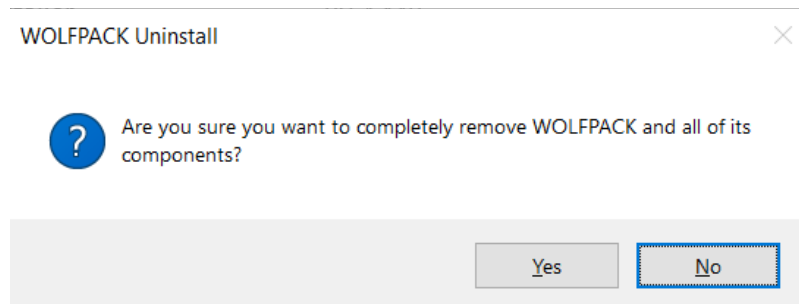
The installation directory is by default: C:\Users\[YOUR USERNAME]\AppData\Local\WOLFPACK . But to ensure that the application works as intended, please avoid modifying, deleting or moving the files in that directory.

II. UNINSTALLING WOLFPACK:

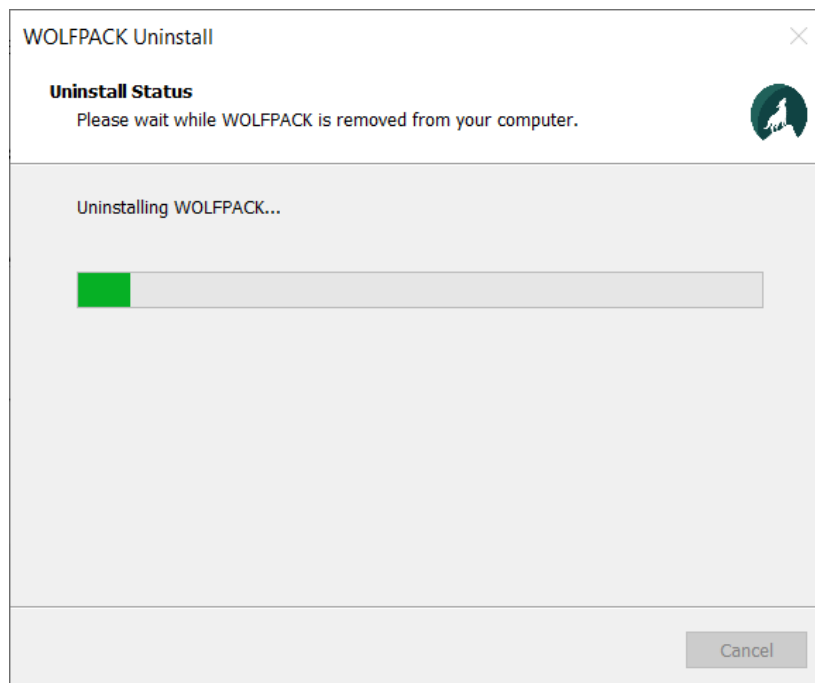
Do you wish to uninstall WOLFPACK from your computer? We're sad to see you leave. Uninstalling the application is just as easy as installing it: access your windows uninstalling utility. In Windows 10, this can be done by typing "Add or Remove Programs" in the search bar. Look for WOLFPACK, select Uninstall:



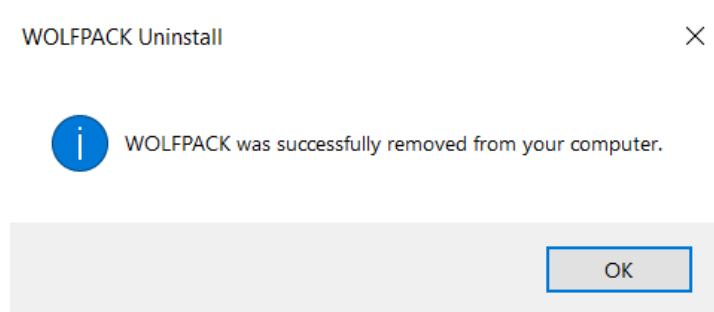
1. Click on Uninstall



2. Select "Yes", or "No" if you wish to abort



3. Wait for the program to uninstall, this will take a few seconds



4. You will get a confirmation that WOLFPACK was uninstalled. Select OK.

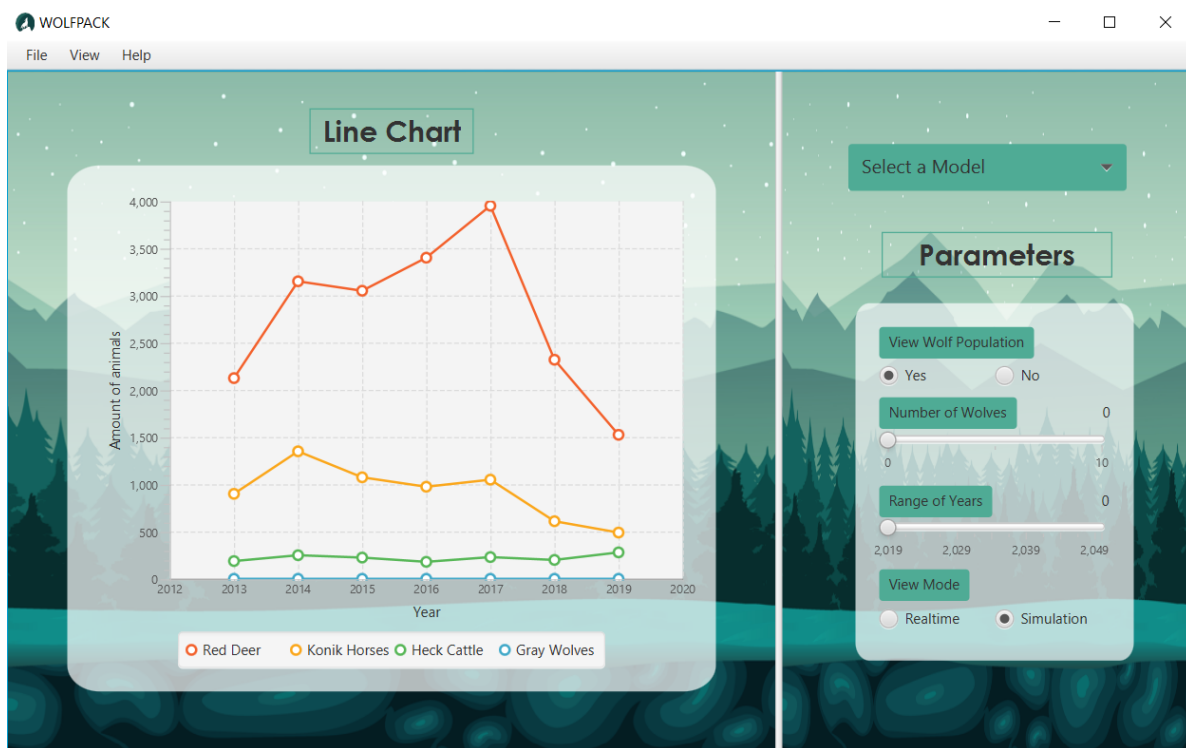
If you have uninstalled WOLFPACK because you were unhappy with the experience, or because something went wrong with the application, please give us your feedback or address us with any questions/problems that you have. Our contact information can be found under CONTACT in this manual.

III. USING THE WOLFPACK APP:

1) THE LINE CHART VIEW:

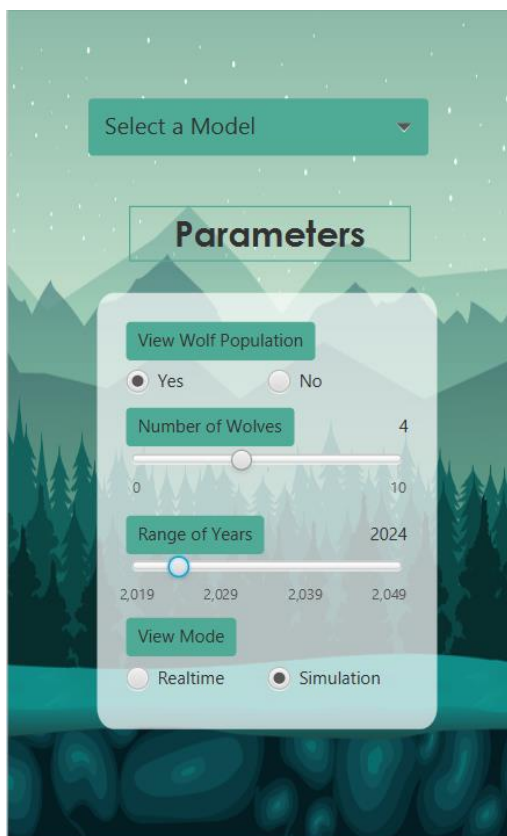
After installing the application, it will immediately launch. If you want to launch it separately, it can be found in the Start bar.

The main screen in WOLFPACK looks like this:



You can now see a line chart of the current populations of each species in the legend before introducing mathematical modelling. This is based on the historical data offered by Staatsbosbeheer (Staatsbosbeheer, n.d.).

You can use the right-side panel to control the line chart:



First, select a model from the box. This will be the mathematical model used to generate new data based on the historical data. You can change it at any time to see different results.

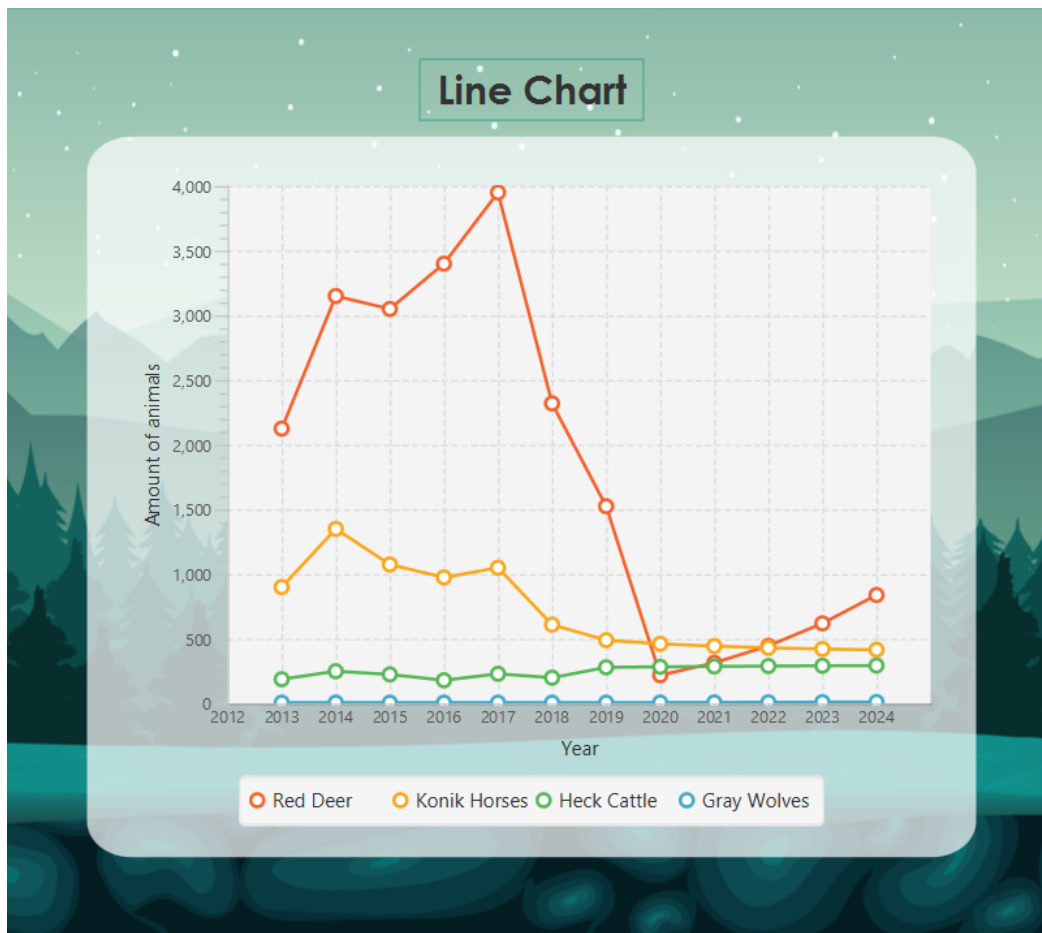
You can select whether or not to view the Wolf Population by selecting "Yes" or "No" accordingly.

You can select an initial number of wolves. It is by default 0; but selecting an initial number is highly encouraged as, once introduced, the population of wolves also varies after some time.

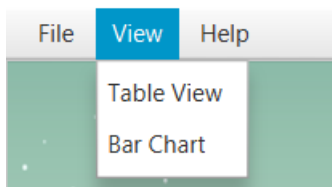
You can use the slider "Range of Years" to select the years that you want to predict the populations of. In this example, 2024 is selected: meaning that the application will view populations up until 2024.

You can switch between Realtime and Simulation mode: in the real-time mode, the chart advances automatically, generating a new point every second until you wish to stop. This disables the right side panel choices: so be aware that you cannot change parameters while in real-time mode. You can switch back to simulation mode at any time.

This is an example of the result in the line chart after changing parameters:

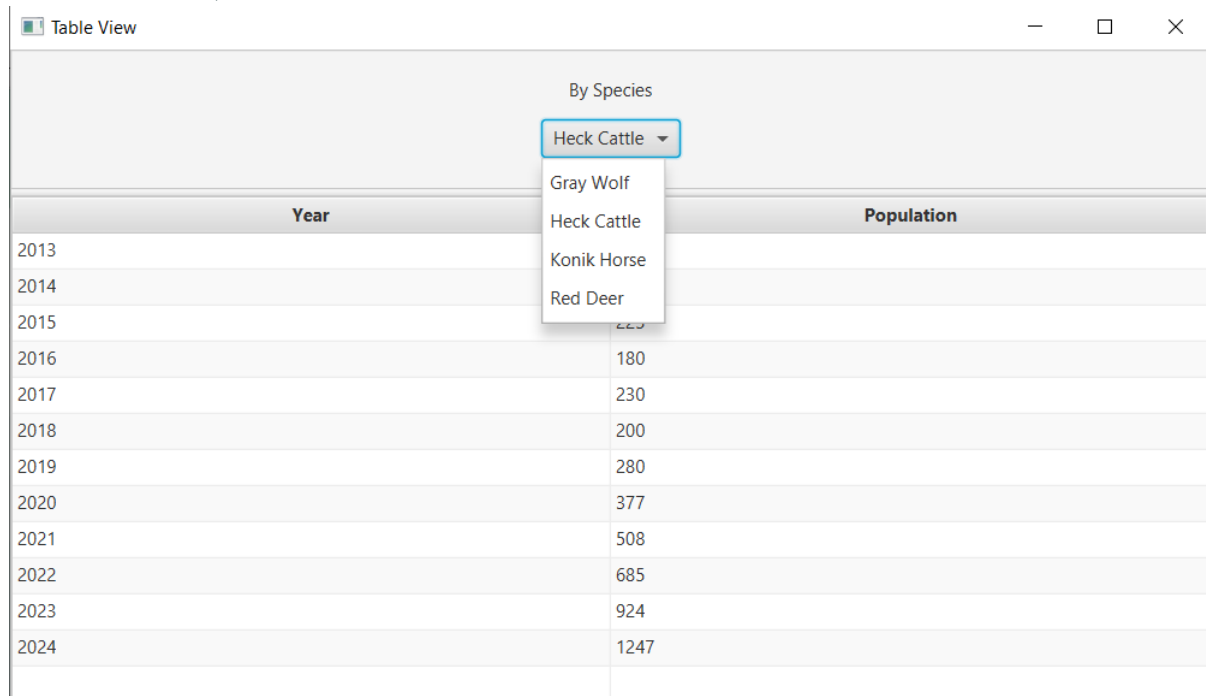


There are more views available besides the line chart view. For now, a Table View and a Bar Chart are available: but we are working on providing more options in the near future. The views can be accessed under the menu “View”:



Under view, you can select Table View or Bar Chart. This will open a new window with the appropriate view.

2) THE TABLE VIEW:



By Species	
Heck Cattle ▾	
Year	Population
2013	220
2014	220
2015	220
2016	180
2017	230
2018	200
2019	280
2020	377
2021	508
2022	685
2023	924
2024	1247

The Table View offers a table of the current data (historical and generated by the parameter change) in numbers for each species. You first have to select a species to get the data by year.

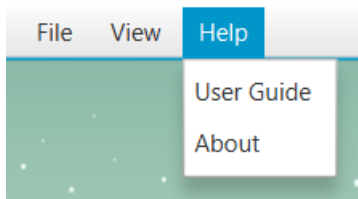
The table changes dynamically by changing the parameters in the main window.

3) THE BAR CHART:

The Bar Chart view shows the Target vs. Current populations in a bar graph. Based on the current year, it retrieves data for each species and compares it to the target populations according to Staatsbosbeheer.

INSERT PICTURE

4) THE HELP MENU:



The Help menu offers guidance in the app: from there, you can access this manual under “User Guide” or read information about the project under “About Us”:

