Biosim Prosjekt

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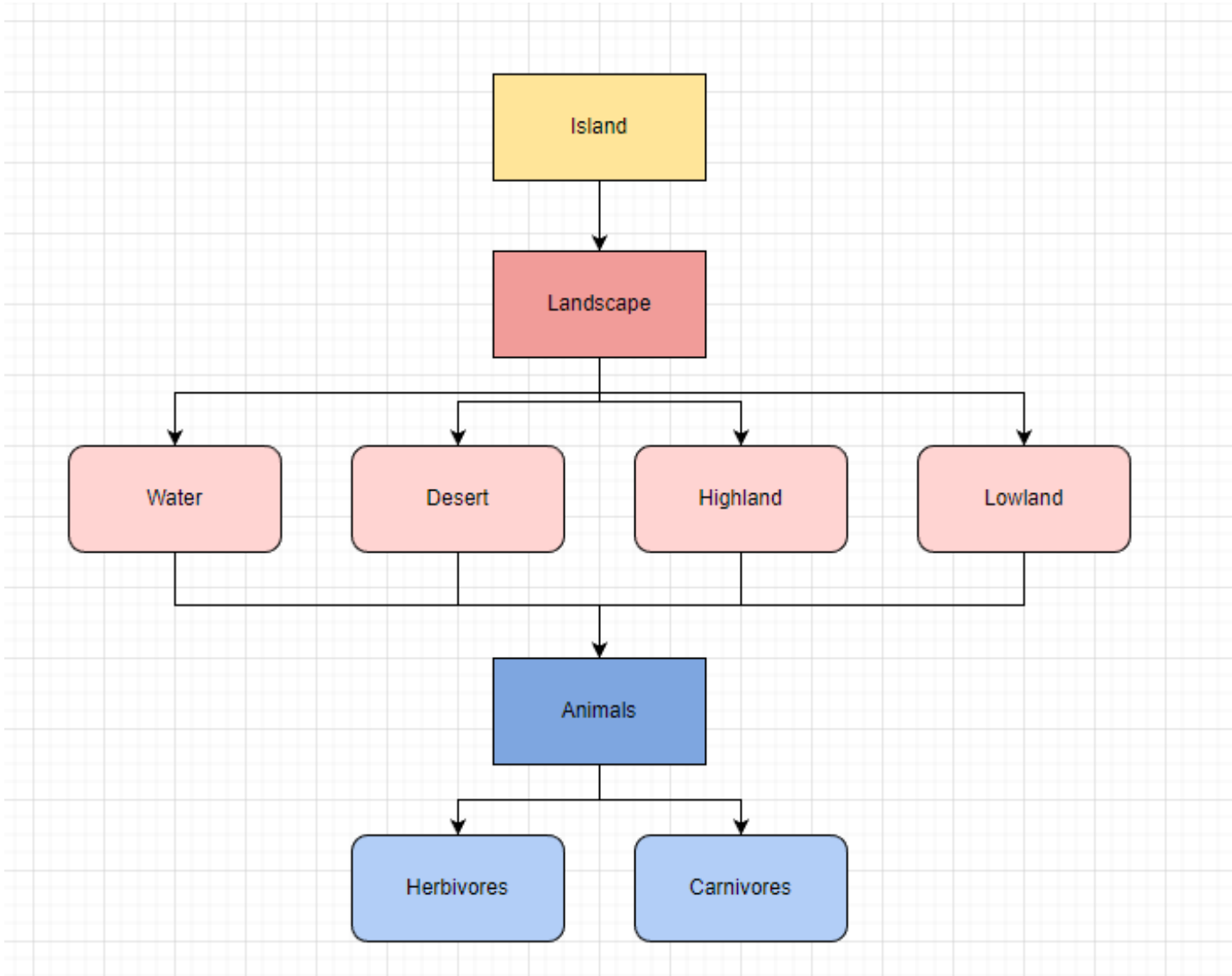
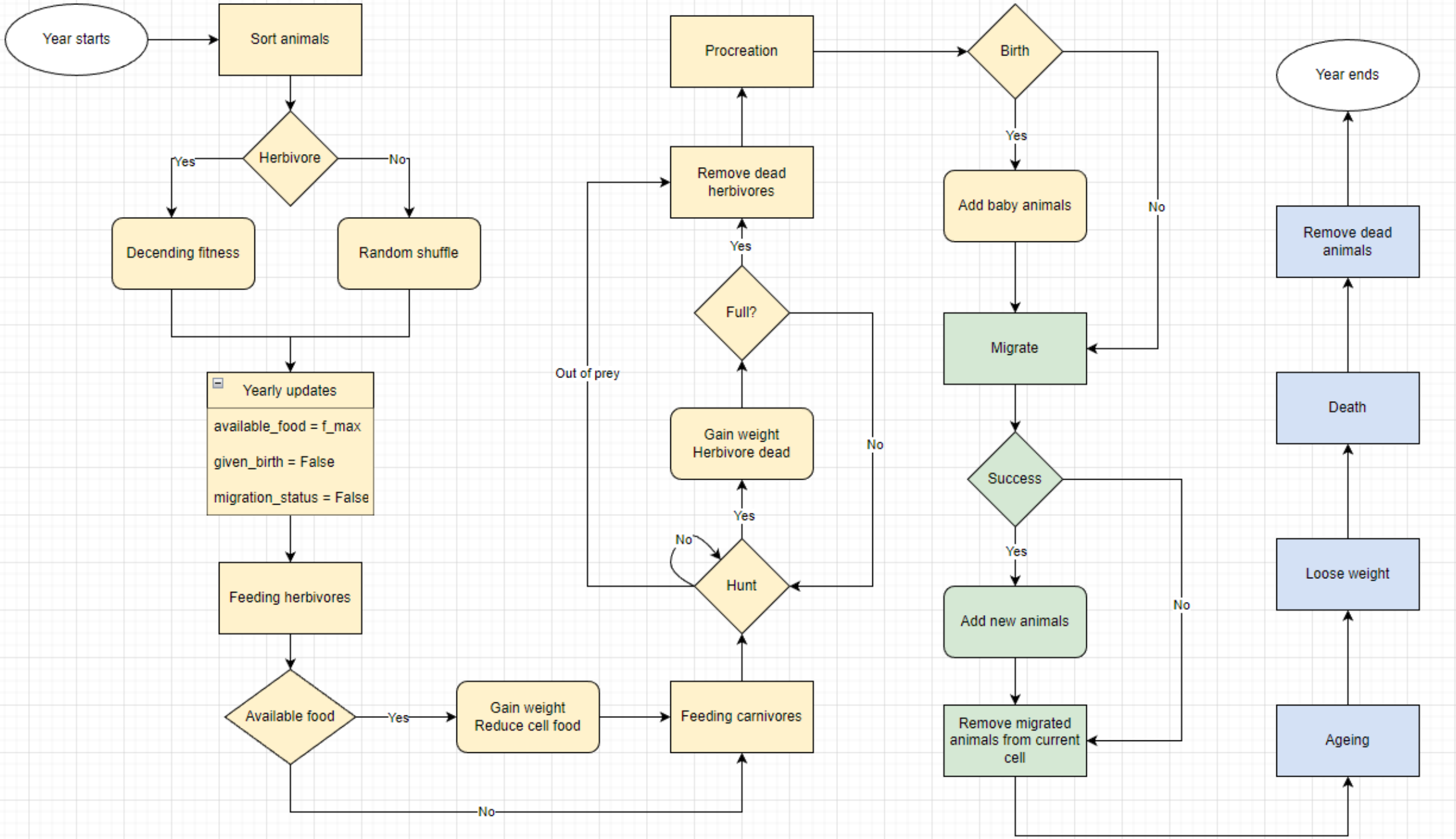
Class structure




Year starts
Sort animals
Herbivore
Yes
No
Decending fitness
Random shuffle
Yearly updates
available_food = f_max
given_birth = False
migration_status = False
Feeding herbivores
Available food
Yes
No
Gain weight
Reduce cell food
Feeding carnivores
Hunt
No
Yes
Gain weight
Herbivore dead
Full?
Yes
No
Out of prey
Remove dead
herbivores
Procreation
Birth
Yes
No
Add baby animals
Migrate
Success
Yes
No
Add new animals
Remove migrated
animals from current
cell
Year ends
Remove dead
animals
Death
Loose weight
Ageing

Name	Call Count	Time (ms) ▼	Own Time (ms)
sample_sim.py	1	156424 100.0%	0 0.0%
simulate	1	117727 75.3%	125 0.1%
year_loop	400	113828 72.8%	711 0.5%
feeding_carnivores	112800	55361 35.4%	405 0.3%
hunt	1687625	54955 35.1%	28760 18.4%
<built-in method builtins.input>	1	37853 24.2%	37853 24.2%
procreation	112800	21878 14.0%	2607 1.7%
give_birth	3951092	18959 12.1%	1541 1.0%
<built-in method builtins.sorted>	1804600	16815 10.7%	5260 3.4%
migrate_to_new_cell	112800	11973 7.7%	778 0.5%
fitness	240676124	11335 7.2%	11335 7.2%
<lambda>	86911167	10372 6.6%	6886 4.4%
fitness_update	15768660	9550 6.1%	8303 5.3%
__init__	1606809	9143 5.8%	7410 4.7%
migrate_animals	112800	8428 5.4%	2055 1.3%
_check_birth_conditions	3951092	7985 5.1%	3369 2.2%
aging	112800	6411 4.1%	100 0.1%
<listcomp>	225600	6306 4.0%	1328 0.8%
loss_of_weight	112800	5382 3.4%	74 0.0%
<listcomp>	225600	5304 3.4%	598 0.4%
__init__	537320	5108 3.3%	96 0.1%

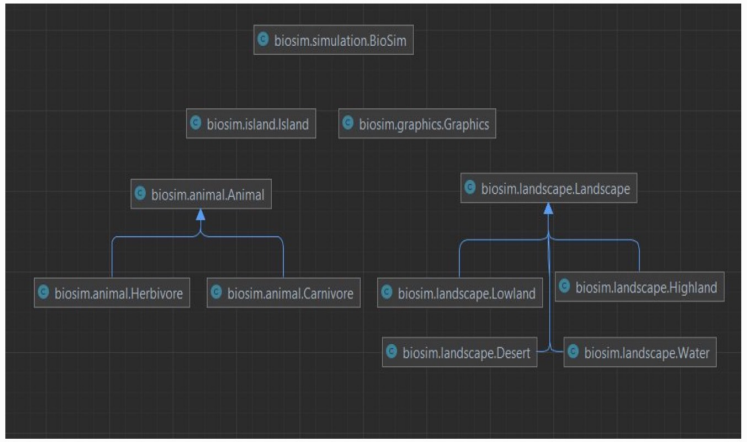
```
---------- coverage: platform darwin, python 3.8.13-final-0 ----------
Name                                                    Stmts   Miss  Cover
---------------------------------------------------------------------------
.tox/py38/lib/python3.8/site-packages/biosim/__init__.py        3      0   100%
.tox/py38/lib/python3.8/site-packages/biosim/animal.py        255      3    99%
.tox/py38/lib/python3.8/site-packages/biosim/graphics.py      184     27    85%
.tox/py38/lib/python3.8/site-packages/biosim/island.py        136      2    99%
.tox/py38/lib/python3.8/site-packages/biosim/landscape.py     123      0   100%
.tox/py38/lib/python3.8/site-packages/biosim/simulation.py     81     10    88%
---------------------------------------------------------------------------
TOTAL                                                          782     42    95%


============================================================================
========= 112 passed in 3.20s ==================================================
========================================

----------------------------------------------------------------------------
--------------- summary ----------------------------------------------------
----------------------------------------
  py38: commands succeeded
  congratulations :)
```

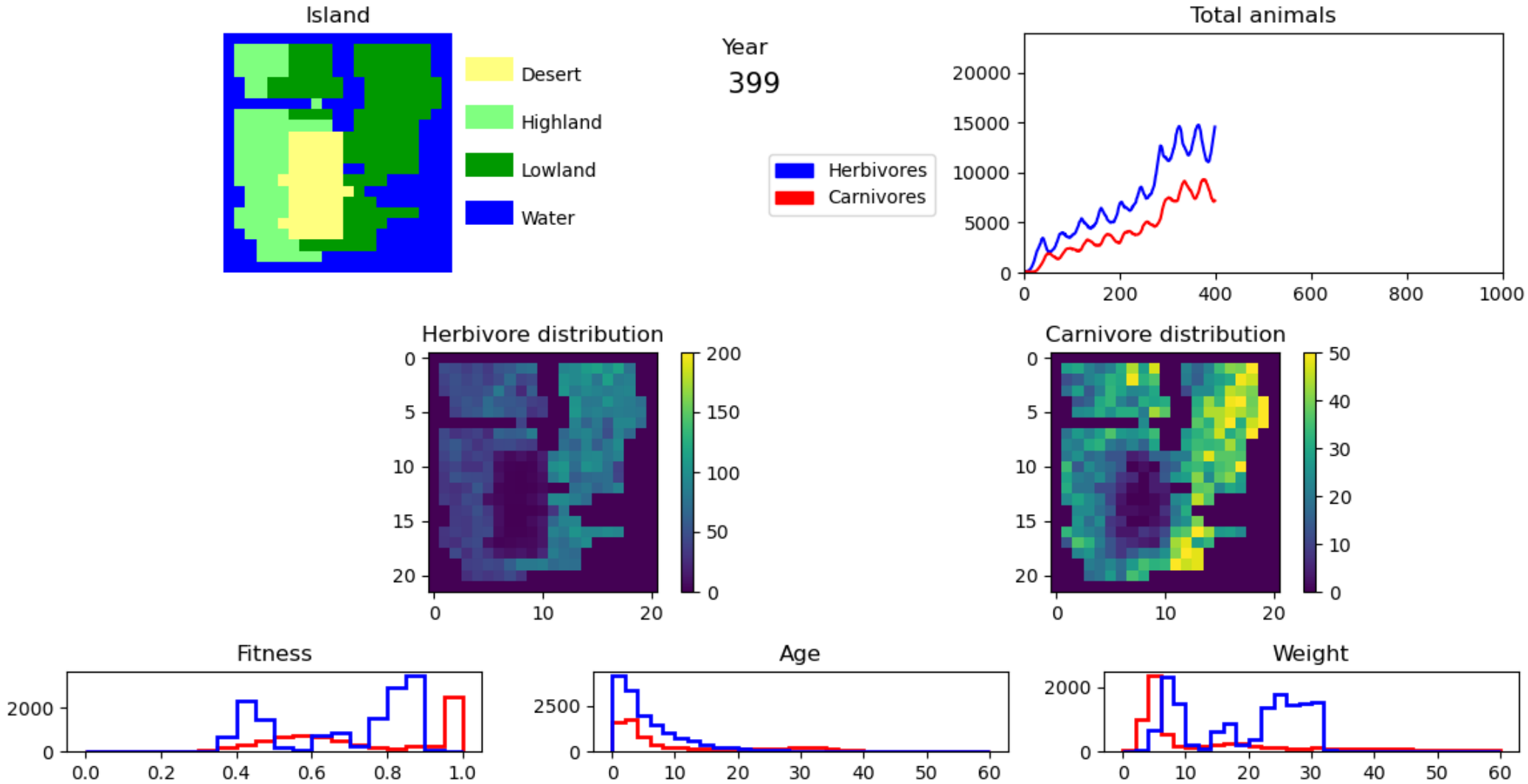

BioSim documentation

The BioSim package consists of several modules used to simulate and paint graphics of the population dynamics in Rossumøya. It is a rather simple dynamic showing a population of herbivores and carnivores. The carnivores hunt the herbivores, while the herbivores feed on vegetation. Different land types supply different amount of fodder and currently we have no species that can stay in water. To see an overview of land supply, as well as other parameters used as calculation metrics in the simulation, see parameters. It is also possible to view examples of simulations as well as code snippets on how to execute.
You can get a rough overview of how the code in the package is currently structured from the image below.



Installation

If you wish to install the package, please follow this short guide on how to do so.


Island
Desert
Highland
Lowland
Water
Year
399
Herbivores
Carnivores
Total animals
20000
15000
10000
5000
0
0
200
400
600
800
1000
Herbivore distribution
Carnivore distribution
Fitness
Age
Weight
2000
2500
0.0
0.2
0.4
0.6
0.8
1.0
10
20
30
40
50
60