

# Obtaining an lx mx schedule from a matrix

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It is possible to obtain **lx** and **mx** schedules from matrix population models using the methods described by Caswell (2001).

Load the data:

```
load("COMADRE_v.1.0.0.RData")
```

Next, query the **metadata** part of **comadre** to identify the location of the desired data using the command **which** in a conditional search:

```
id <- which(comadre$metadata$SpeciesAccepted == "Lepus_americanus")
id
```

```
> [1] 958 959 960 961 962 963
```

The code to do the mathematics is available at our GitHub site.

You will first need to load the **devtools** library, and also **MASS** since the function calls functions in **MASS**:

```
library(devtools)
library(MASS)
```

Now load the required functions:

```
source_url("https://raw.githubusercontent.com/jonesor/compadreDB/master/Functions/makeLifeTable.R")
```

```
## SHA-1 hash of file is e4c670fb6b1c0a7b4a778eb3e88a1c6780069335
```

Let's pick the first of the list obtained above:

```
lt1 <- makeLifeTable(matU = comadre$mat[[id[1]]]$matU, matF = comadre$mat[[id[1]]]$matF,
                     startLife = 1, nSteps=10)
lt1
```

```
>      x          lx          mx
> 1  0 1.000000e+00  0.0000
> 2  1 1.971520e-02 10.3402
> 3  2 3.982470e-03 10.3402
> 4  3 8.044590e-04 10.3402
> 5  4 1.625007e-04 10.3402
> 6  5 3.282515e-05 10.3402
> 7  6 6.630679e-06 10.3402
> 8  7 1.339397e-06 10.3402
> 9  8 2.705582e-07 10.3402
> 10 9 5.465277e-08 10.3402
```