Flash Talk – Evogames in Python

Or how I travelled through time on User Interfaces

github.com/cromlyngames/stos-valley

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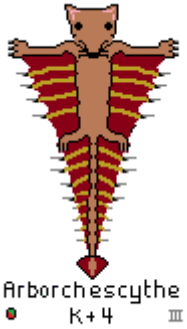
1990s : Pixel Valley



Pixel art done by hand,
Layout uses Graphviz
'Story' uses reddit comment chain format

Parent species chosen randomly
BUT new species 'hand crafted'

- 'Power' improvement
- Environmental improvement
- Sexual competition improvement

New species 'stress' competitors
Extinction every ten species Stress > dice

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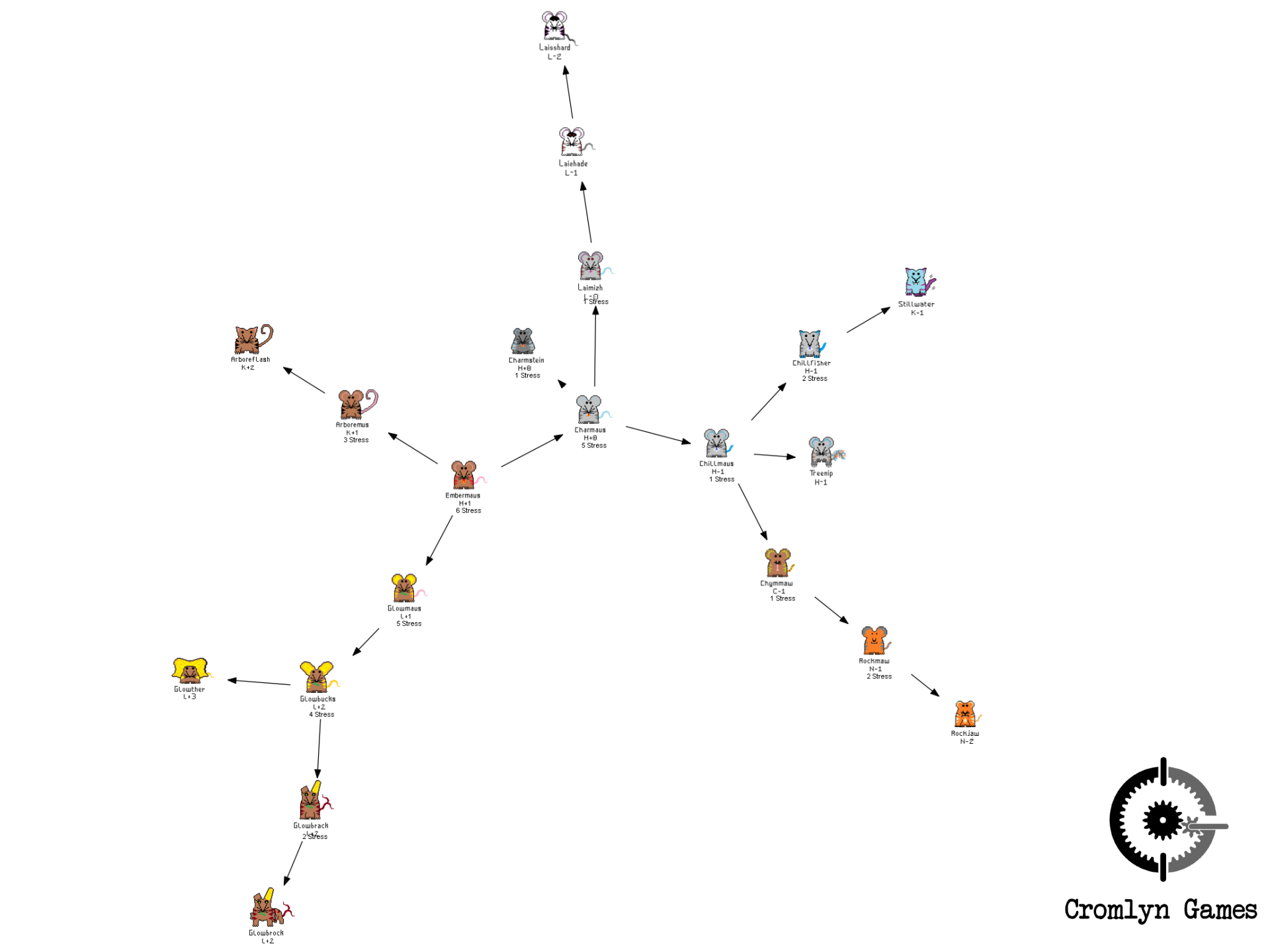

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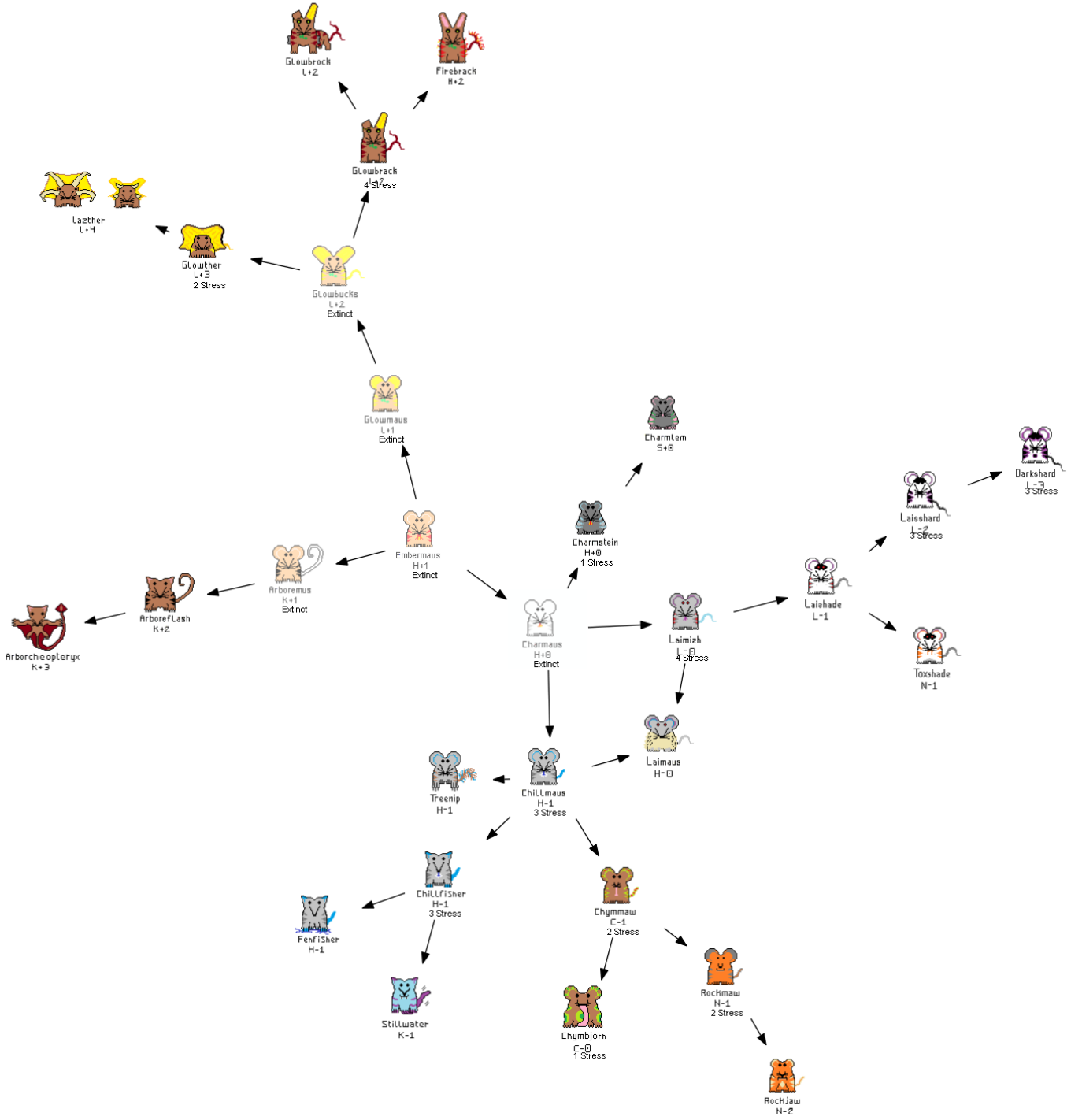

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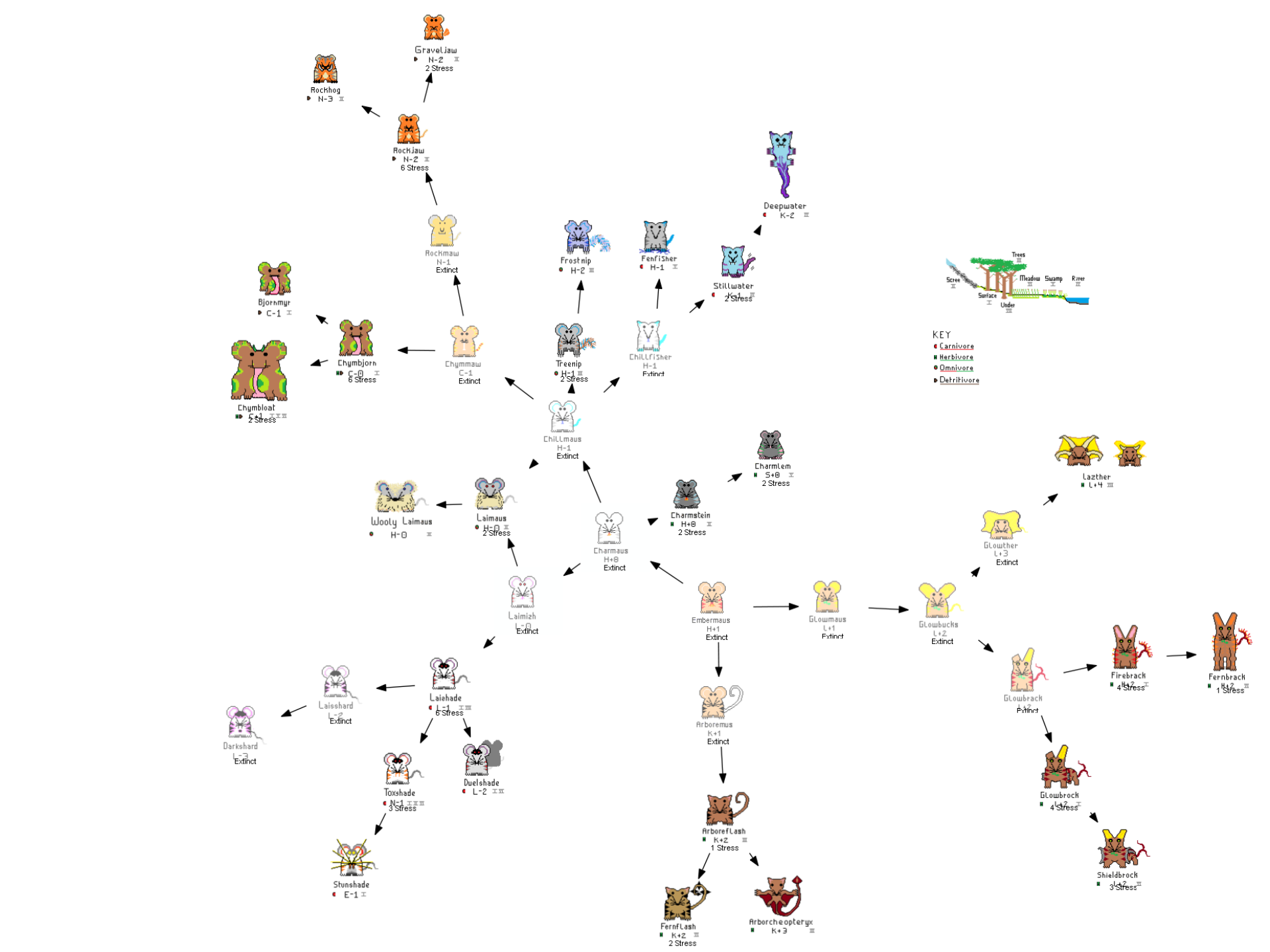
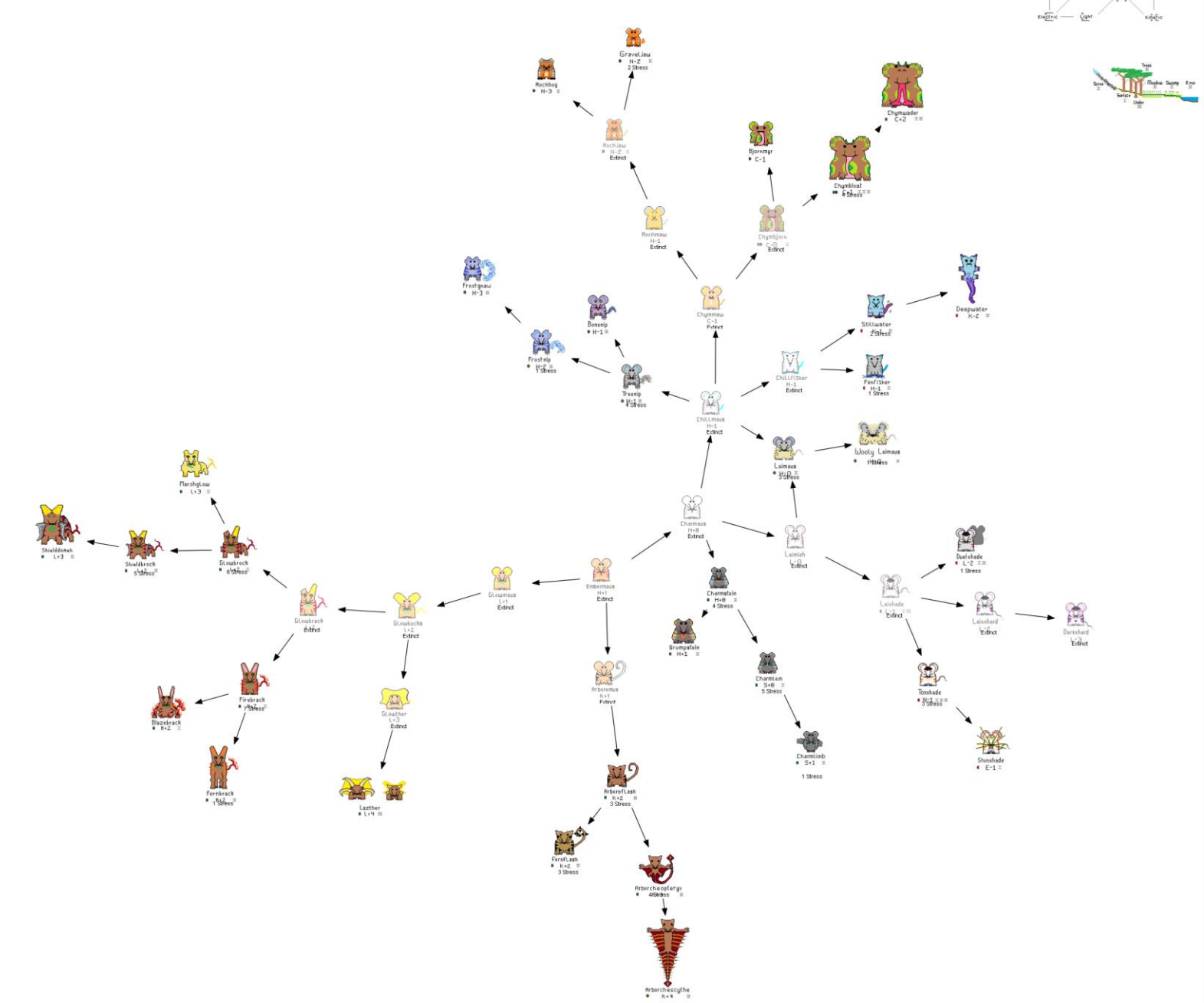

Graveljaw
N-2
2 Stress
Rockhog
N-3
Rockjaw
N-2
6 Stress
Rockmaw
N-1
Extinct
Deepwater
K-2
Frostnip
H-2
FenFisher
H-1
Stillwater
K-1
2 Stress
Trees
Scree
Meadow
Swamp
River
Surface
Under
KEY
Carnivore
Herbivore
Omnivore
Detritivore
Bjornmyr
C-1
Chymbjorn
C-0
6 Stress
Chymbloat
C-1
2 Stress
Chymmaw
C-1
Extinct
Treenip
H-1
2 Stress
ChillFisher
H-1
Extinct
ChillMaus
H-1
Extinct
Charmlem
S+0
2 Stress
Charmstein
H+0
2 Stress
Charmaus
H+0
Extinct
Wooly Laimaus
H-0
Laimaus
H-0
2 Stress
Laimiah
L-0
Extinct
Embermaus
H+1
Extinct
Glowmaus
L+1
Extinct
Glowbucks
L+2
Extinct
Glowther
L+3
Extinct
Lazther
L+4
Glowbrack
L+1
Extinct
Firebrack
H+2
4 Stress
Fernbrack
H+2
1 Stress
Glowbrock
L+2
4 Stress
Shieldbrock
L+2
3 Stress
Laiehade
L-1
6 Stress
Laisshard
L-2
Extinct
Darkshard
L-3
Extinct
Toxshade
N-1
3 Stress
Duelshade
L-2
Stunshade
E-1
Arboremus
K+1
Extinct
ArborefLash
K+2
1 Stress
FernfLash
K+2
2 Stress
Arborcheopteryx
K+3



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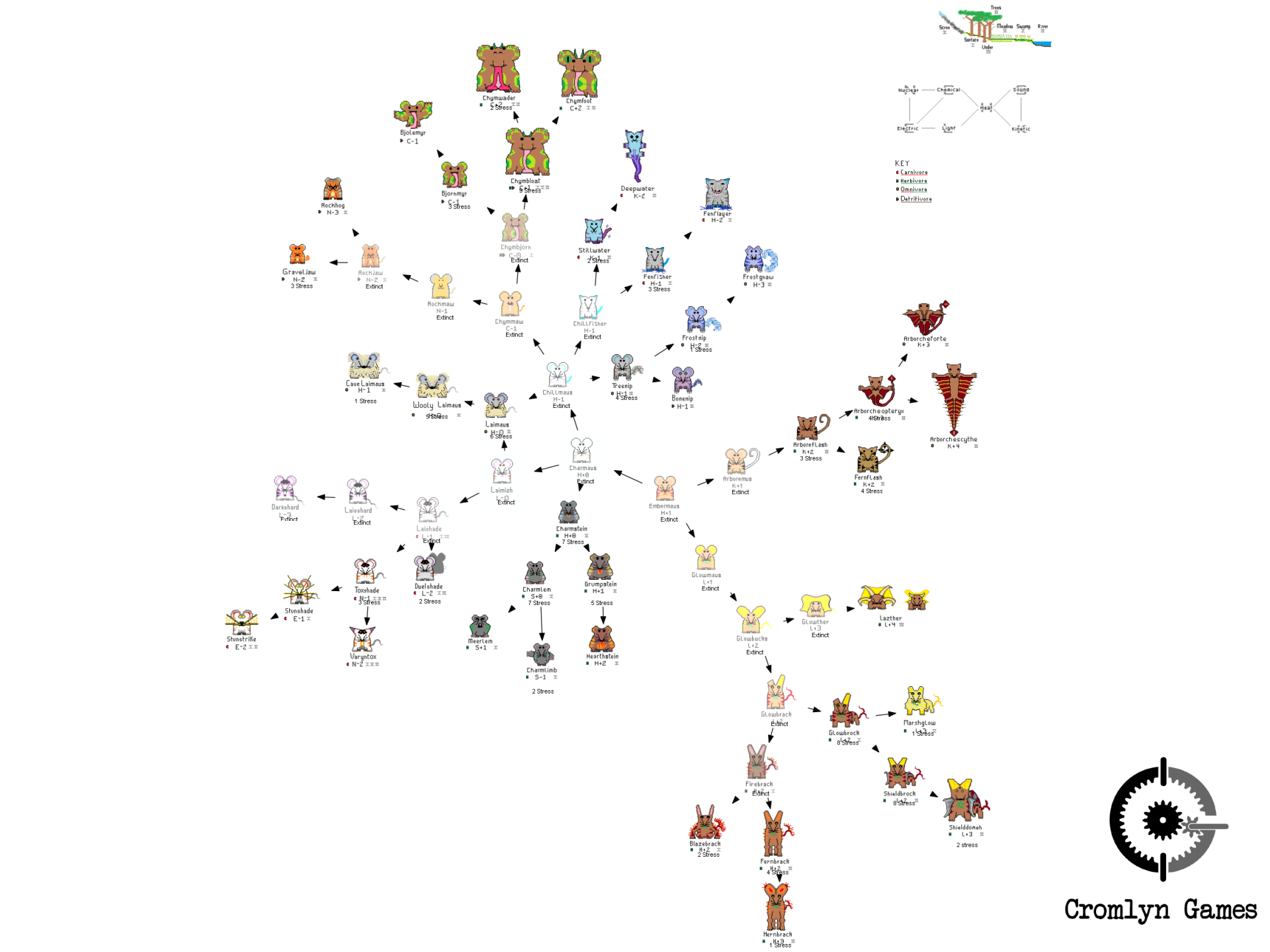

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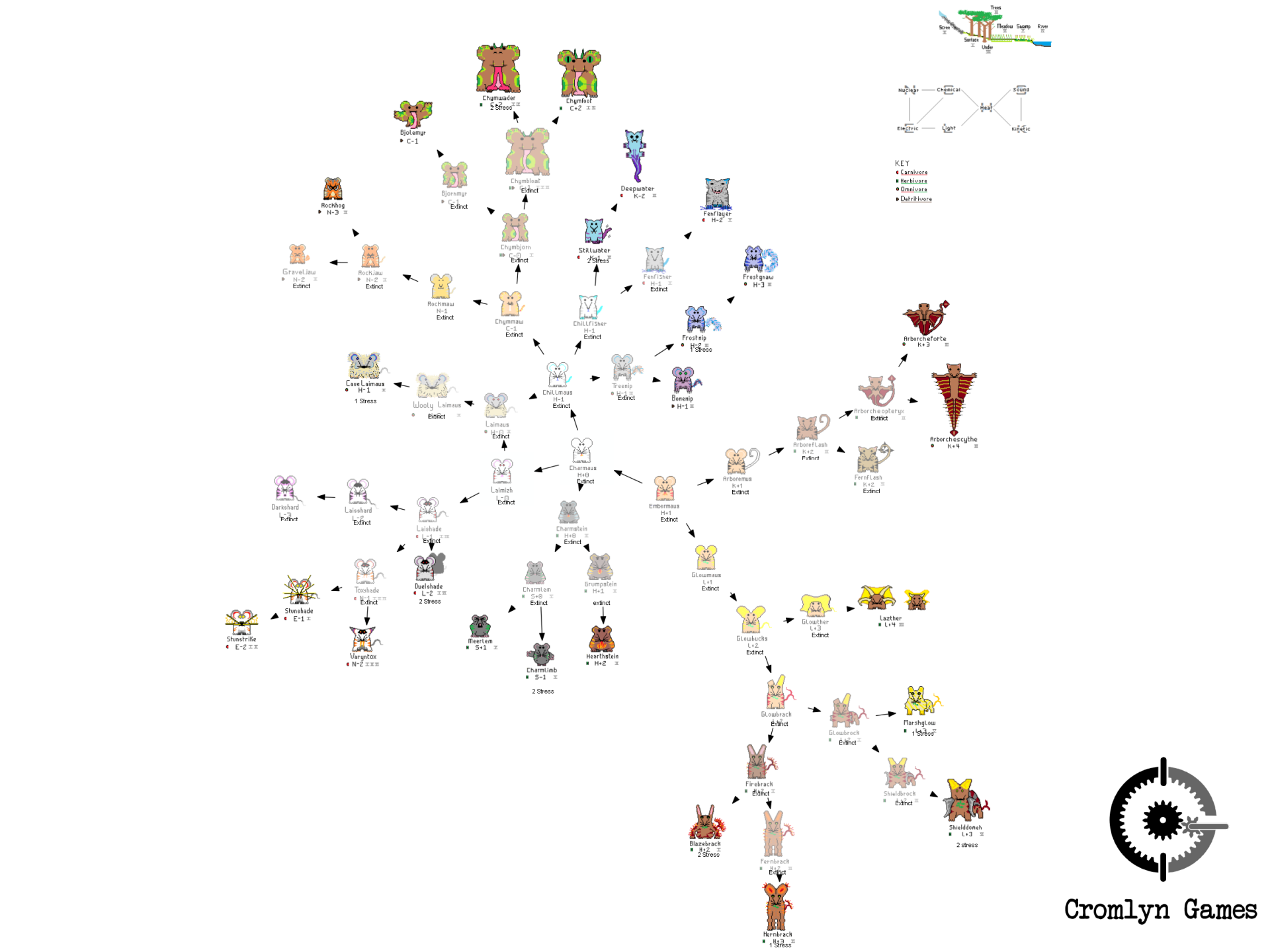

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1980s - Python Eating Turtle Valley

Uses tkinter and the turtle module
Animal as sequence of lengths and angles.
Mutation +- 10% > eliminates all but useful
Emergent shape assessed:

```
preybonus =    1/3*(detailsbit['eyeratio']
               +generikmon['crownD']
               +detailsbit['fangtipratio'])

senseEval =    1/4*(detailsbit['eyesize']
               +detailsbit['nosesize']
               + generikmon['ear2D']
               + generikmon['ear6D'])
```

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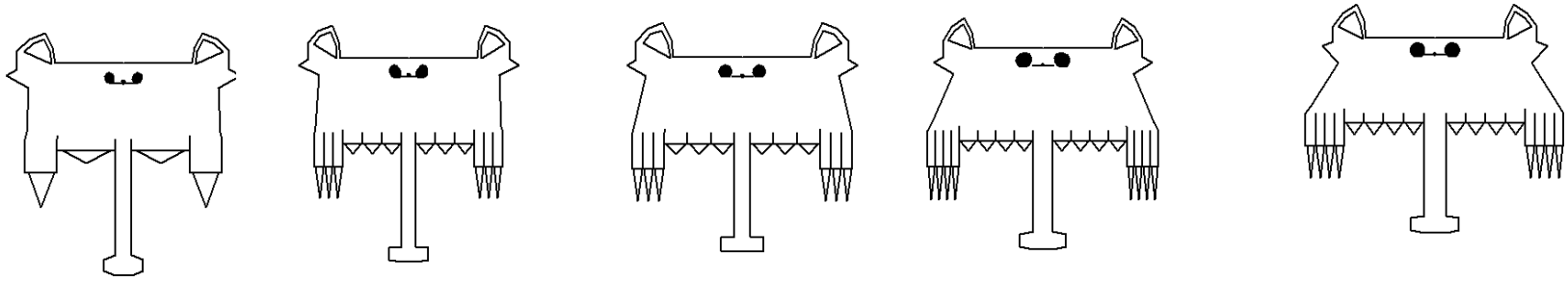
Evolving for prey bonus



But…

Turtle very slow
‘Cliff-edge’ fitness issues
Great for environment, but no interaction between species

github.com/cromlyngames/stos-valley / blob/master/turtledraawtest2.py

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1970s: Fantasy Foodweb

Input: number of species, incoming energy
Ignores environment, focus on species interaction

```
Light_eater_compi = {      'SC': 'Quickly growing to full
                           height',
                           'RK': 'Entangling climber',
                           'PA': 'Symbiotic Defender '}

Light_eater_defnd = {
'SC': 'Tall, high leaves',

'RK': 'Woody stems',
'PA': 'Sacrificial Fruits '}

                           Herbi_eater_predi = {
                           'RK': 'Long neck/good
                           climber/burrower',
                           'PA': 'Specialised gut',
                           'SC': 'Grinding
                           maw/teeth/beak'}
```

github.com/cromlyngames/stos-valley / blob/master/fantasy-foodweb

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Sample output

The Light_eater Crlia (10011) is noted for Quickly growing to full height, , , .
There are 52 of these head height, large bush sized growths in the area
The Light_eater Pidnky (10013) is noted for , , , nothing.
There are 4 of these hand size, potplant sized growths in the area

The Herbi_eater Marbil (50018) is noted for , Specialised gut, , .
 There are 17 of these medium, fox sized browsers in the area
when threatened it will Sense and avoid
The Herbi_eater Rattlater (50022) is noted for Loud warning calls, Specialised gut, Fast and nimble, .
 There are 19 of these medium, fox sized browsers in the area
when threatened it will Flee from danger

github.com/cromlyngames/stos-valley / blob/master/fantasy-foodweb

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Problems

No environmental adaptations
No feedback to environment (daisy world or beavers)

Poor scaling – inevitable?
Not PEP 8 compliant. Refactor and try again.

Carnivore tango

NO PIXEL ART!

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