Dictionaries

Python for Ecologists

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Dictionaries

- Also known as associative arrays or hashmaps
- key:value
- Are mutable, like lists
- Unlike lists, index can be something other than an integer
- Lists keep order, dictionaries don't
- Can be very efficient for searching and for table lookups

```
bw_grams = {}
bw_grams['Spring_peeper'] = 4
bw_grams['Bullfrog'] = 500
bw_grams['Cane_toad'] = 1800
print bw_grams['Bullfrog']
```

Setting keys and values

```
print bw_grams['Barking_treefrog']
'Barking_treefrog' in bw_grams
bw_grams.has_key('Barking_treefrog')
print bw_grams.get('Barking_treefrog', 'Not_found')
# Compare
bw_grams.setdefault('Barking_treefrog', 80)
# another way to set a default value for a key
if 'Barking_treefrog' not in bw_grams:
  bw_grams['Barking_treefrog'] = 80
```

Mixing types

- Can be used to track properties of individuals in an individual-based model

```
male43 = {"sp":"Orca", "bw":10., "status":"suscept"}
male43["status"] = "infected"
male43
```

- Dictionary name (e.g., male43) can be nested and itself be a key

```
male4 = {"male43" : male43}
male4
male4['male43']["status"]
```

Using variables to map dictionaries

```
bw_grams = {}
frog = 'Cricket_frog'
weight = '10'
bw_grams['frog'] = frog
bw_grams['weight'] = weight
```

Deleting a key

- Compare

```
del bw_grams['infected']
bw_grams.pop('infected')
```

Other methods

- List all contents

```
bw_grams.items()
```

- List keys

```
bw_grams.keys()
```

- List values

```
bw_grams.values()
```

- Iterable

```
tmp= bw_grams.iteritems()
for i in tmp:
  print i
```

- Compare

```
for i in bw_grams:
  print j
```