

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
```