

# Dictionaries

## Python for Ecologists

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August 3, 2012

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

## Using variables to map dictionaries

```
bw_grams = {}  
frog = ''  
weight = ''
```

## Deleting a key

```
del bw_grams[ 'infected' ]
```