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Objectives

To gain an appreciation of a real-world ecological system

To create a new form of data presentation

To be able to extrapolate data to suit new geographical scenarios

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Where is Parkhurst Forest?

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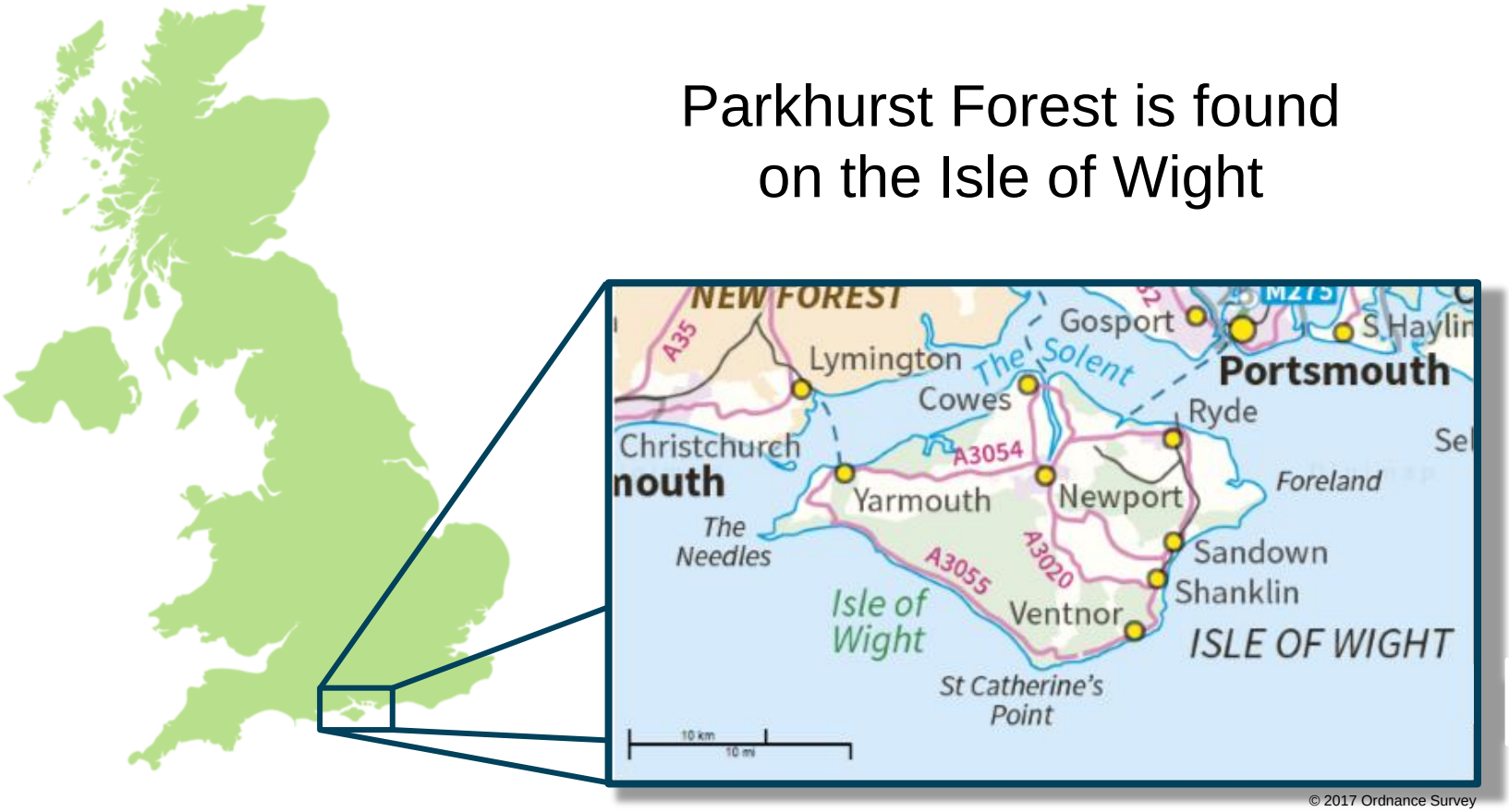
Parkhurst Forest is found on the Isle of Wight



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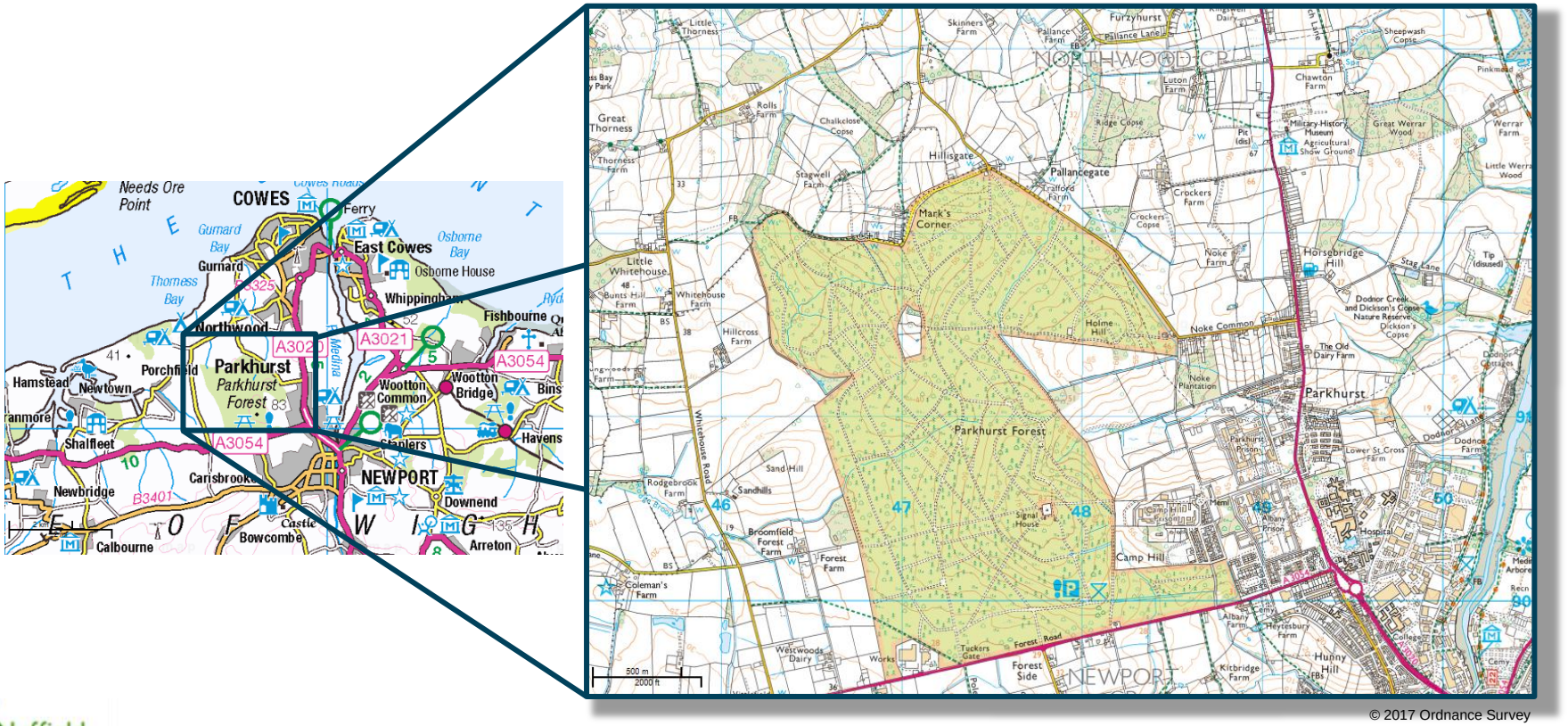
Parkhurst Forest is found near to the centre of the Isle of Wight, equidistant from Cowes and Newport, to the west of the River Medina.



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Describe the site and situation of Parkhurst Forest

What key points could be included in location description?

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Describe the site and situation of Parkhurst Forest

What key points could be included in location description?

Use real places: Country → County → Town

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Describe the site and situation of Parkhurst Forest

What key points could be included in location description?

Use real places: Country → County → Town

Use directions: North East South West

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Describe the site and situation of Parkhurst Forest

What key points could be included in location description?

Use real places: Country → County → Town

Use directions: North East South West

Use mapped features: Rivers Main roads

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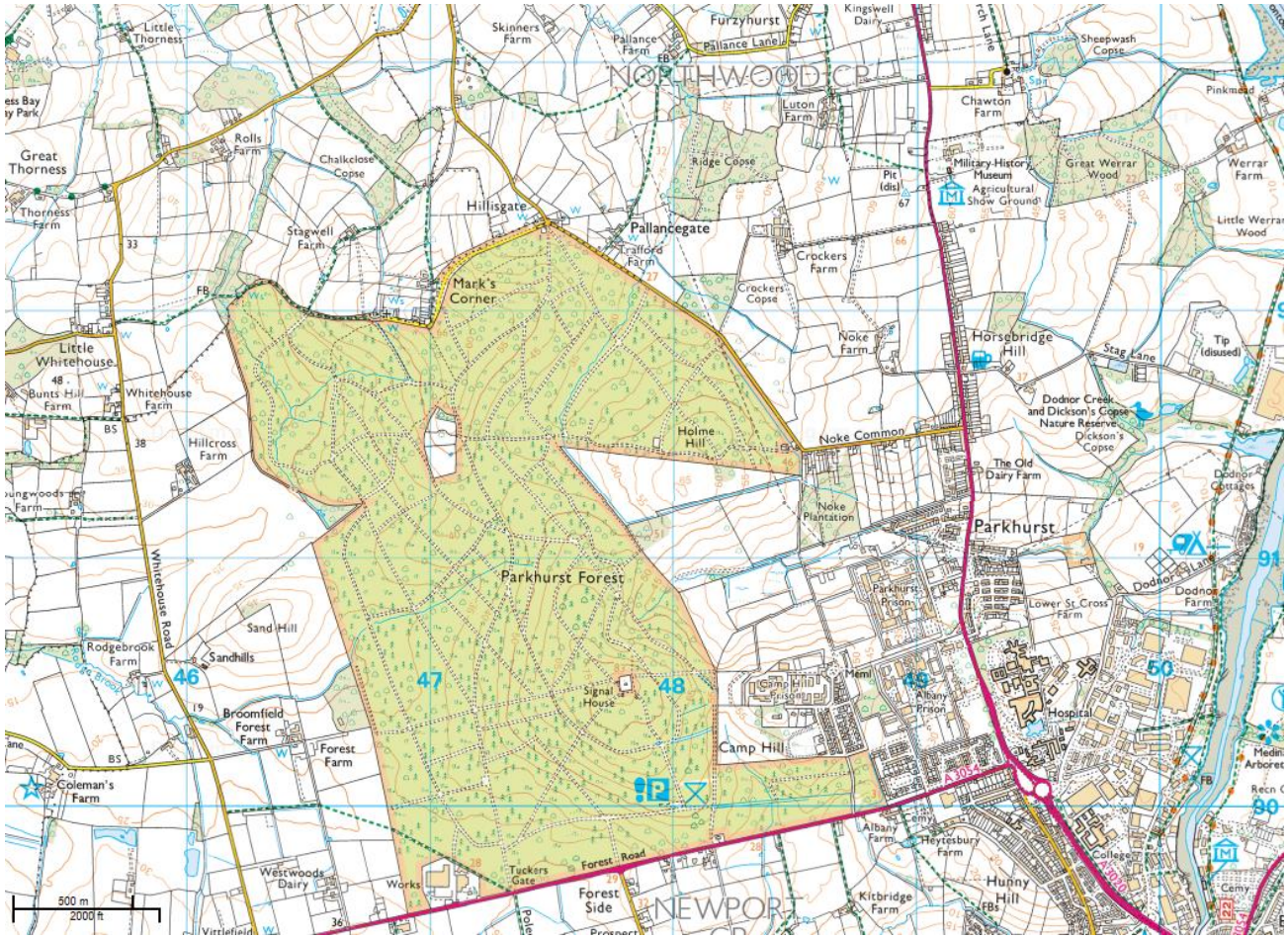

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1. Name the main road that runs along the southern most edge of Parkhurst Forest

Whitehouse Rd A3054

Noke Common Rd A3020

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A3054

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1. Name the main road that runs along the southern most edge of Parkhurst Forest

A3054

2. Give the four-figure grid reference for the large clearing, found within Parkhurst Forest

4791 4892

9147 9248

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3. Give the six-figure grid reference for Signal House, found within Parkhurst Forest

482920	478905
928485	912470

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3. Give the six-figure grid reference for Signal House, found within Parkhurst Forest

478905

4. How many metres above sea level is Signal House?

75 80

83 65

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3. Give the six-figure grid reference for Signal House, found within Parkhurst Forest

478905

4. How many metres above sea level is Signal House?

83

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5. What is the straight-line distance from the most northerly point in Parkhurst Forest to its most southerly point?

8.9km	5.1km
2.5km	3.1km

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5. What is the straight-line distance from the most northerly point in Parkhurst Forest to its most southerly point?

3.1km

6. What is the shortest distance possible between Parkhurst Forest and the River Medina?

2.1km

1.7km

1.3km

1.0km

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7. What is found in grid square 4789 that may have an impact on the ecology in Parkhurst Forest?

Works / Industrial Site

Prison

Farm

Housing

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Works / Industrial Site

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7. What is found in grid square 4789 that may have an impact on the ecology in Parkhurst Forest?

Works / Industrial Site

8. If you were to walk from the top of Holme Hill to Camp Hill Prison, what bearing would you have taken?

114°

24°

156°

336°

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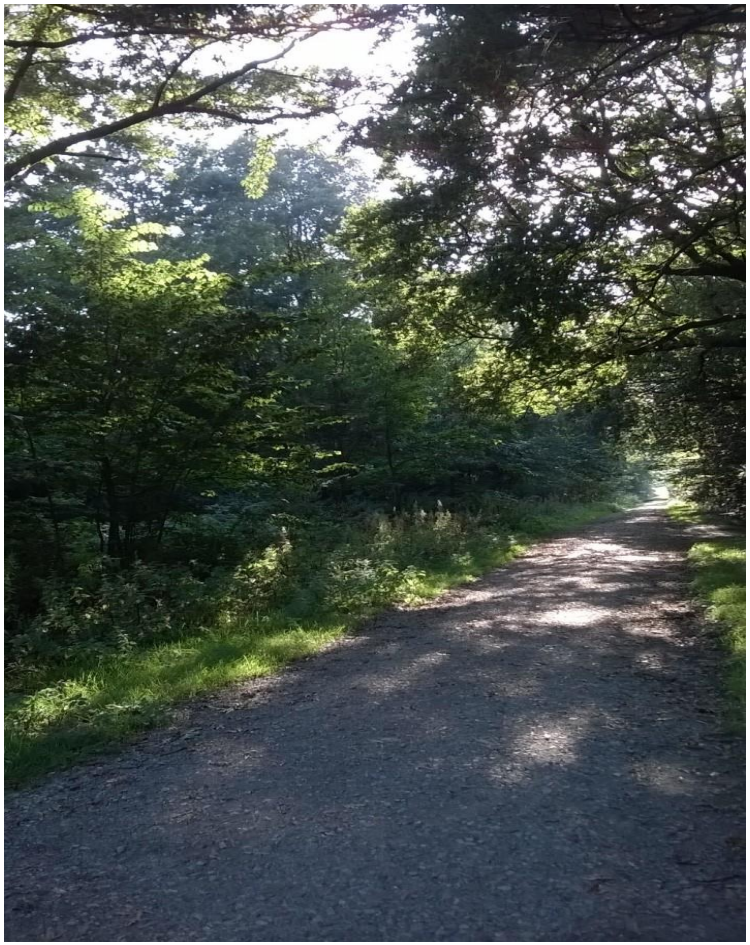
An Introduction to Parkhurst Forest

Parkhurst Forest is an area of mixed temperate woodland on the Isle of Wight.

The forest is one of the oldest in the UK, with records showing its use as a royal hunting forest in medieval times. The forest is now managed by the Forestry Commission.



Source: Chloe Searl

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Source: Steve Childs (CC-BY-2.0)

Pearl bordered Fritillary

Source: Chloe Searl

The 395 hectare site, which includes 3 hectares of meadow in the centre of the forest, is unusually wild given its proximity to the centre of Newport, the county town of the Isle of Wight.

The forest contains a large Napoleonic oak plantation and several significant areas of pine trees, home to a large proportion of the Island's 3,500 red squirrel population. Parkhurst Forest also provides a habitat for nationally rare species of butterfly and lichen.

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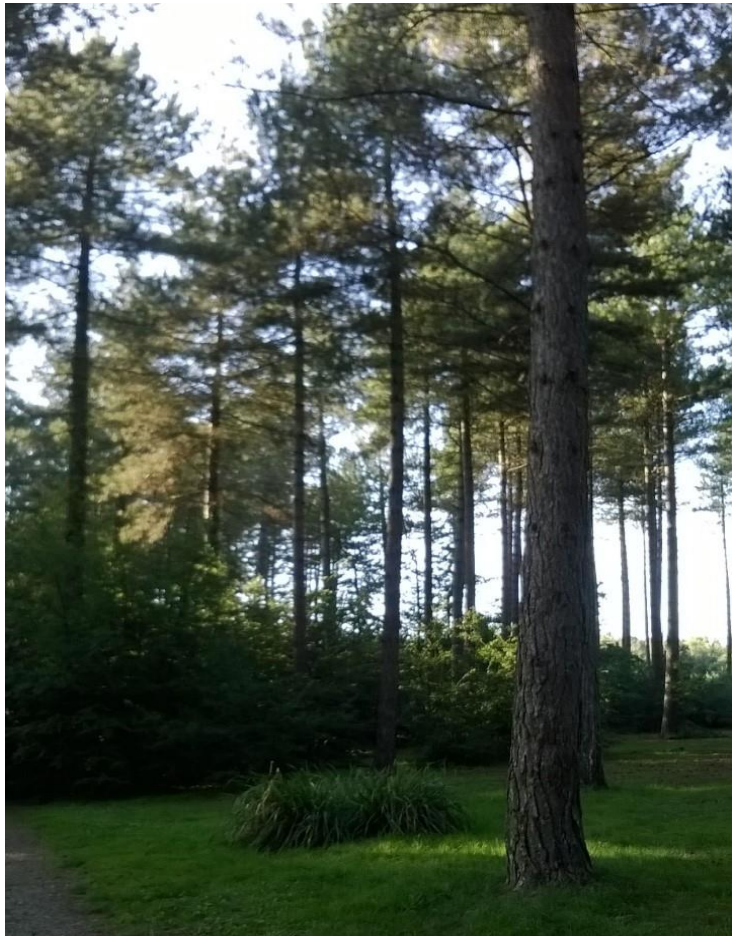
The forest is an important part of the tourism portfolio of the Island, and is well used by islanders and visitors.

Vandalism, fires and fly-tipping do occur, but are relatively infrequent given the size and popularity of the forest.



Source: Chloe Searl

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What is discrete data?

Discrete data is that which can only be measured using a specific numerical value.

What is continuous data?

Continuous data can (in theory) take any value and continue to an infinite number.

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Discrete or Continuous?

Age

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Discrete or Continuous?

Age

Continuous

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Discrete or Continuous?

Number of something

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Discrete or Continuous?

Number of something

Discrete

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Discrete or Continuous?

Temperature

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Discrete or Continuous?

Temperature

Continuous

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Discrete or Continuous?

Velocity

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Discrete or Continuous?

Velocity

Continuous

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Discrete or Continuous?

Percentage of something

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Discrete or Continuous?

Percentage of something

Discrete

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Discrete or Continuous?

Distance

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Discrete or Continuous?

Distance

Continuous

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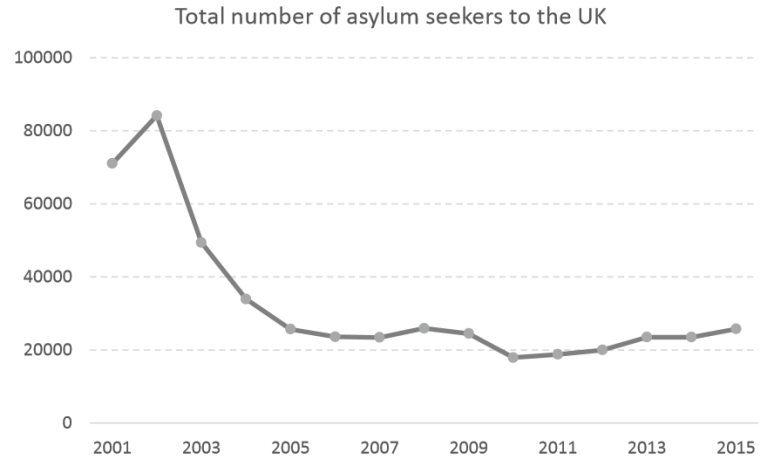
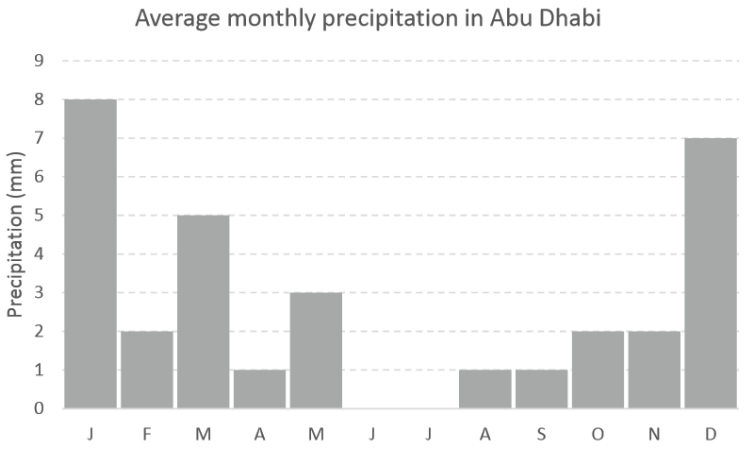
When using discrete data avoid:

Line graphs



Histograms



Otherwise most other common forms of data presentation can be used.

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Species found in a temperate woodland

Number of species	1980	2015
Tree A	2782	1803
Tree B	1554	1960
Tree C	996	1277
Tree D	631	620
Tree E	40	121
Tree F	16	57

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Species found in a temperate woodland

Is this discrete data (each species stands alone) or continuous data (Species A continues on from Species B etc)?

Number of species	1980	2015
Tree A	2782	1803
Tree B	1554	1960
Tree C	996	1277
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Species found in a temperate woodland

How might you present this discrete data?

Number of species	1980	2015
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Tree B	1554	1960
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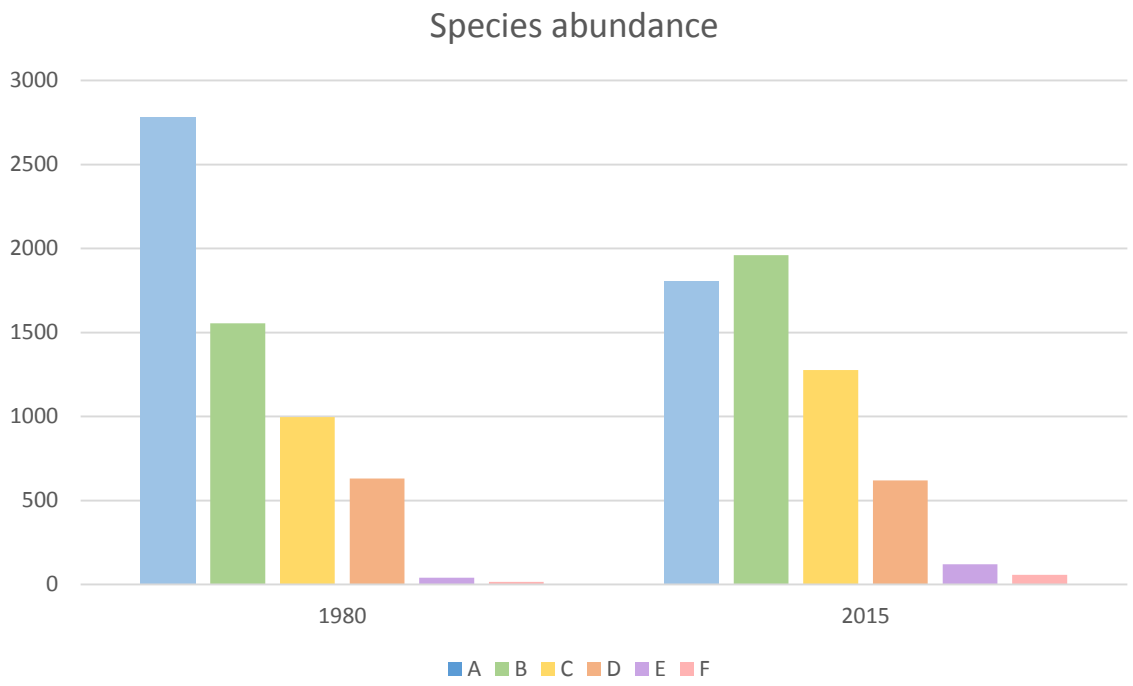
You could present the data in bar charts:



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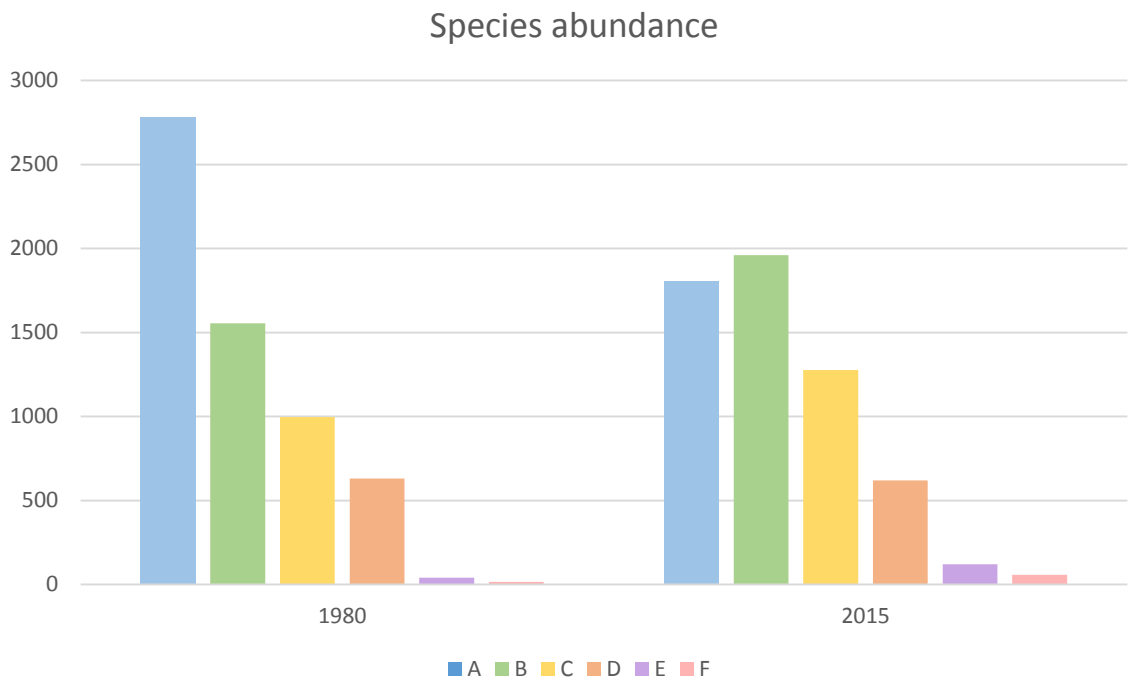

What problems can you see with this method?

Think about how easy it is to compare the data between the two years

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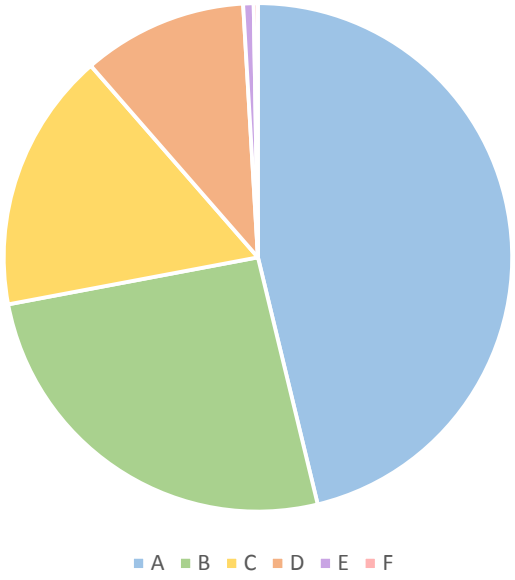
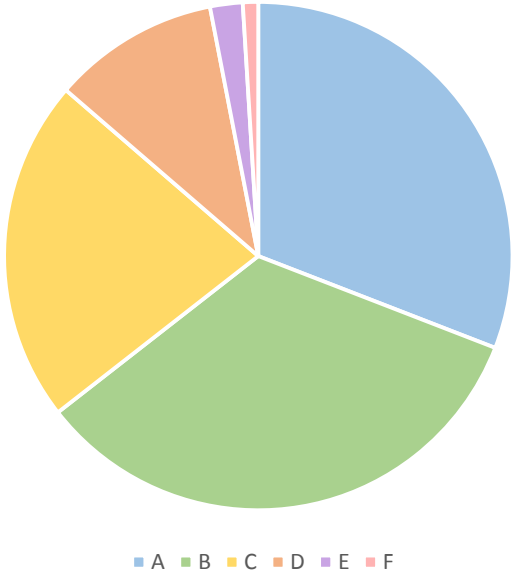
You could present the data in pie charts:

Species abundance in 1980



Species abundance in 2015



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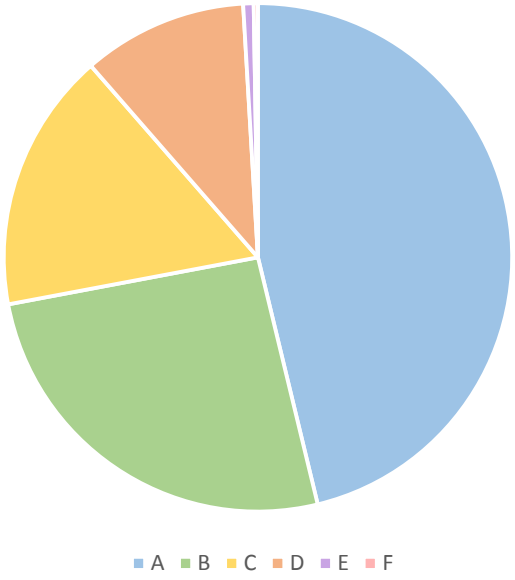
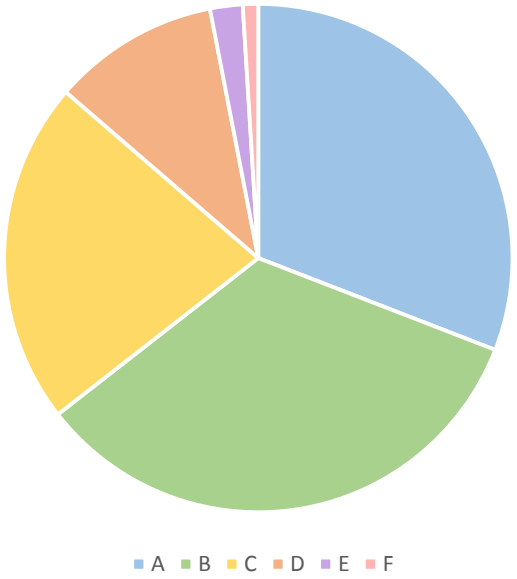


Species abundance in 2015



What problems can you see with this method?

Think about how easy it is to read the data for small numbers of a species

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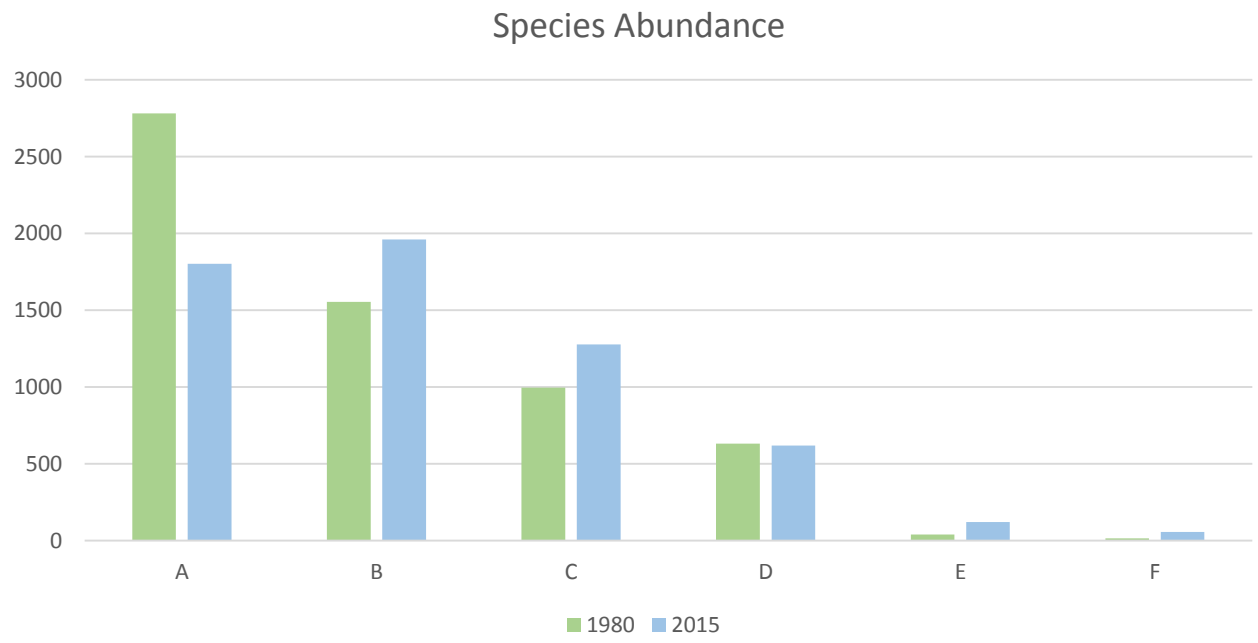
You could present the data in a comparative bar chart:



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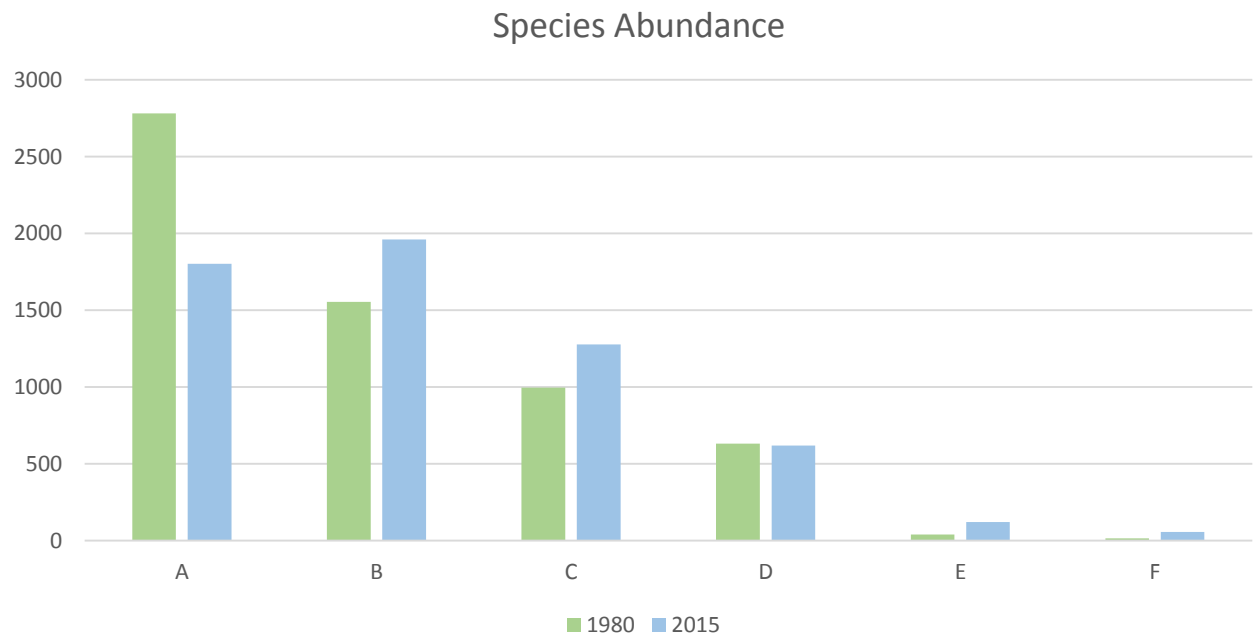

What problems can you see with this method?

Think about the difference between the highest value and the lowest

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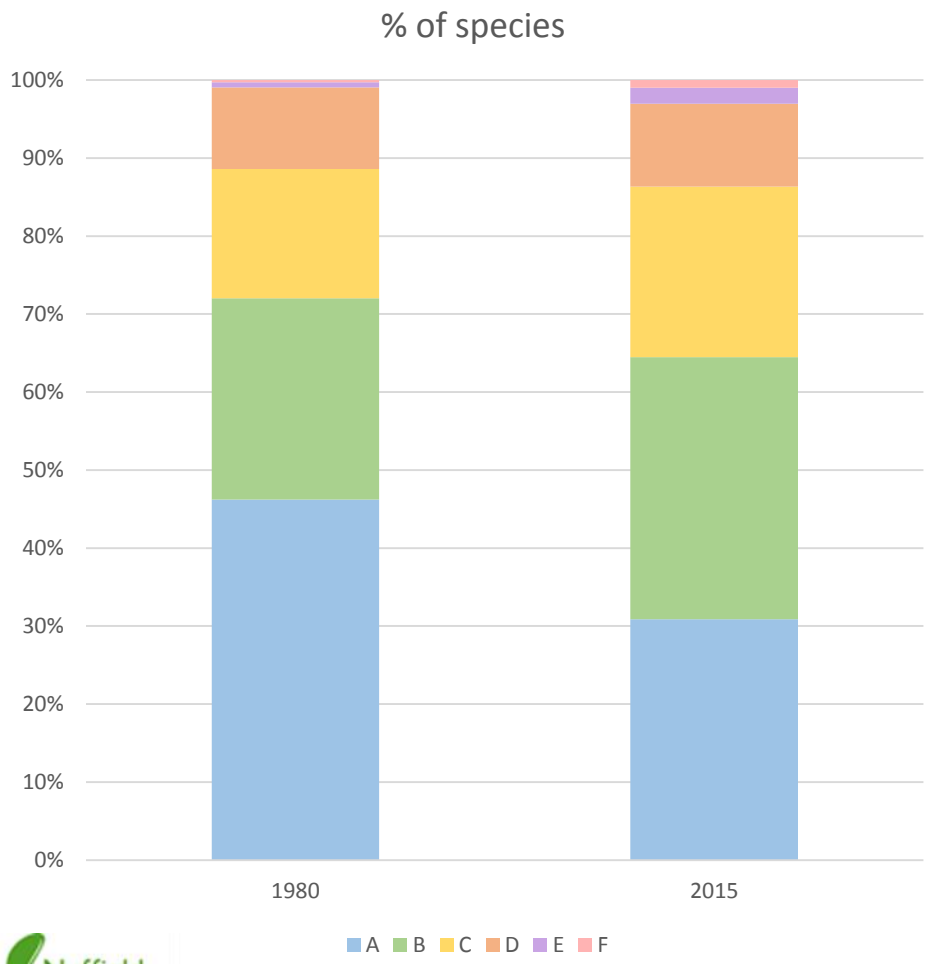

You could present the data in a composite bar chart:

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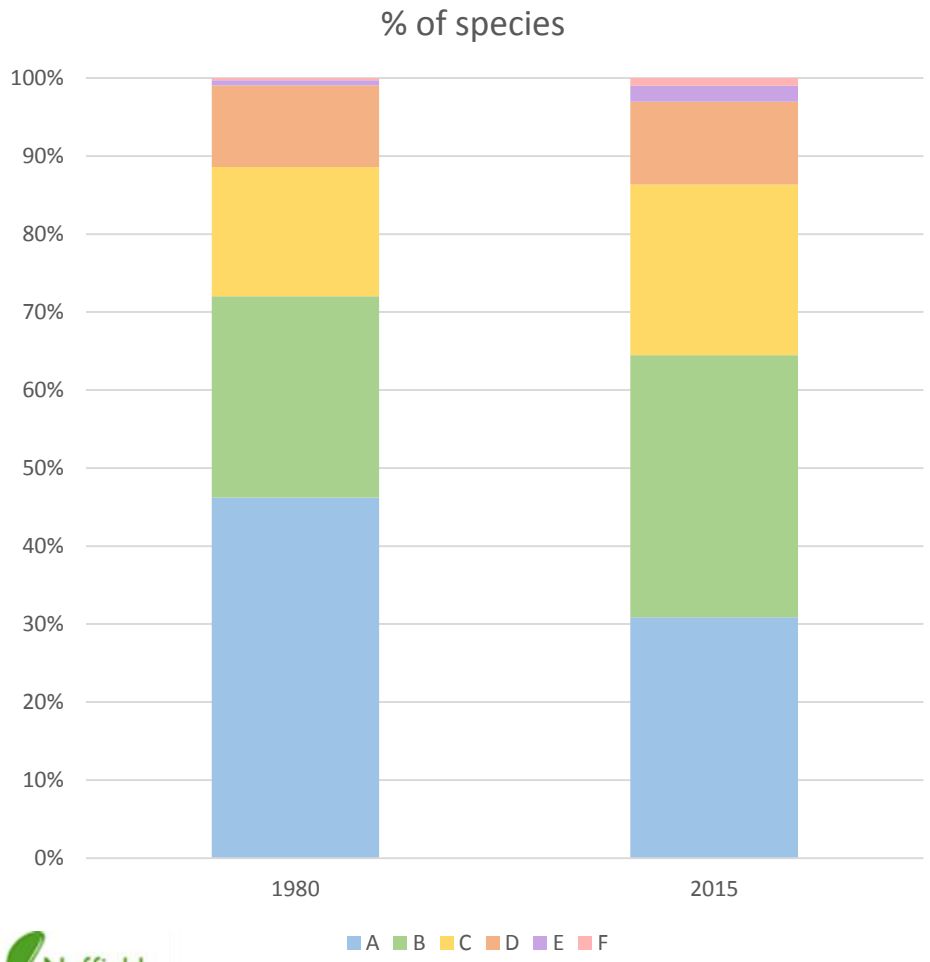

You could present the data in a composite bar chart:

What problems can you see with this method?

Think about the ability to know how many there are of each species

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Parkhurst Forest is undergoing a conservation plan known as the '**Parkhurst Forest Design Plan**' (PFDP). It aims to bring more biodiversity into the woodland and retain its attraction for native red squirrels.

As part of the PFDP, a species and ground cover survey was conducted in 2005. It is hoped that in 2037, when the PFDP concludes, the species and ground cover will be very different.

Source: Hehaden (CC-BY-2.0)

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Species	% cover (2005)	% cover (2037)
Oak	32	36
Hazel	0	5
Beech	4	0
Scots and Corsican Pine	32	7
Other broadleaf species	9	30
Other conifer species	19	6
Grassland	0	5
Open space	4	11

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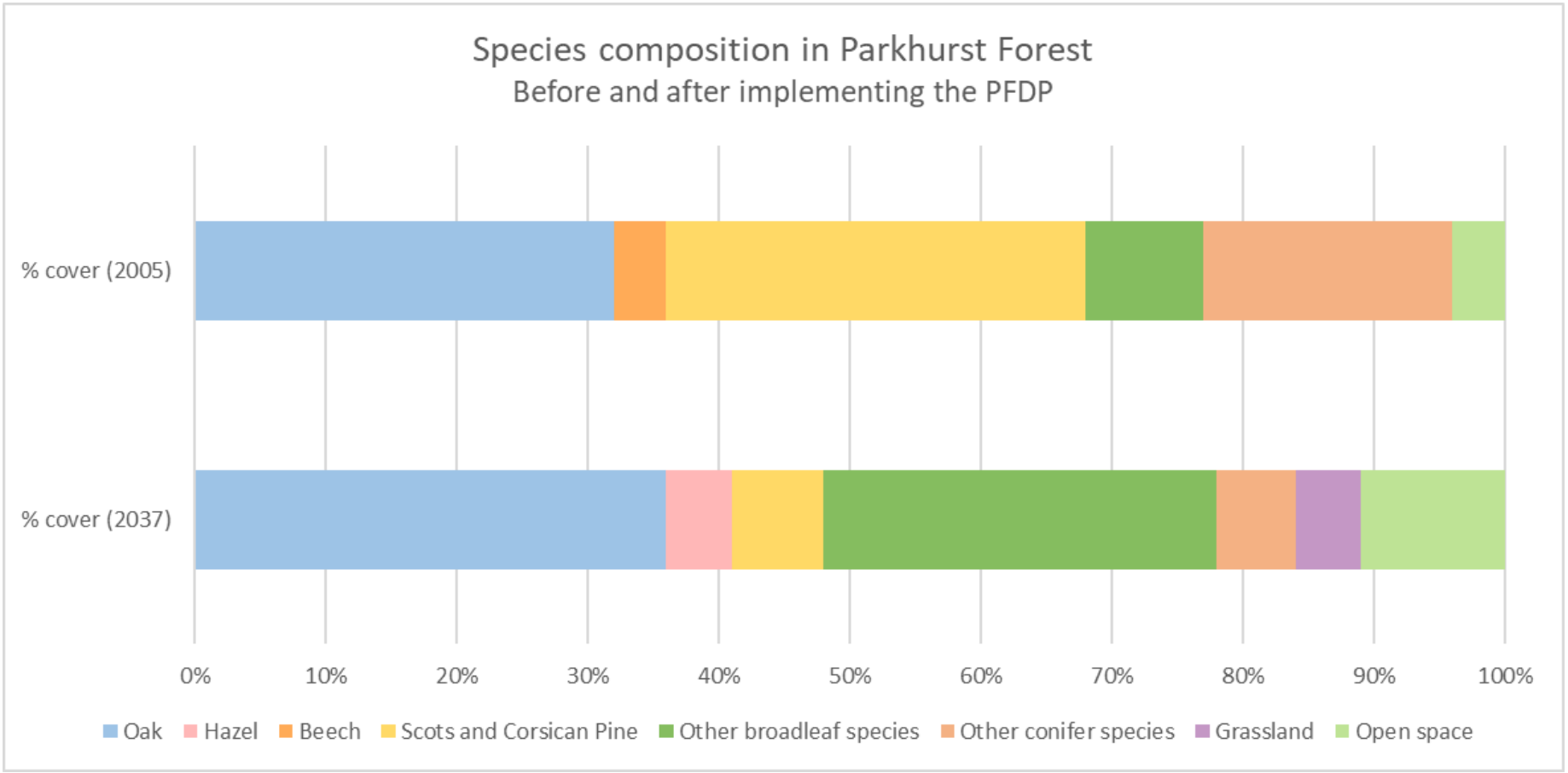

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Acute Oak Decline is a problem from which some oak trees suffer. Trees can become infected by bacteria that can cause them to stop growing or die.
It affects thousands of trees across Southern England.

The bacteria infects the area directly under the bark of the tree. This causes cracks to appear in the bark and for essential fluids to come out. This, in time, causes the tree to be starved of nutrients.

Oak ‘weeping’ through bacterial infection

Source: Ken-ichi Ueda CC BY-NC 2.0

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Oak Jewel Beetles lay their eggs under the bark of oak trees. Their numbers have been increasing over the last thirty years. Scientists think that the beetle may be the reason why bacterial infections are spreading through oak trees as the beetle go from tree to tree.

Defra (the Department for the Environment, Farming and Rural Affairs) is currently undertaking a £1.1 million research project into Acute Oak Decline.

Oak Jewel Beetle

Source: Nigel Jones CC BY-NC-ND 2.0

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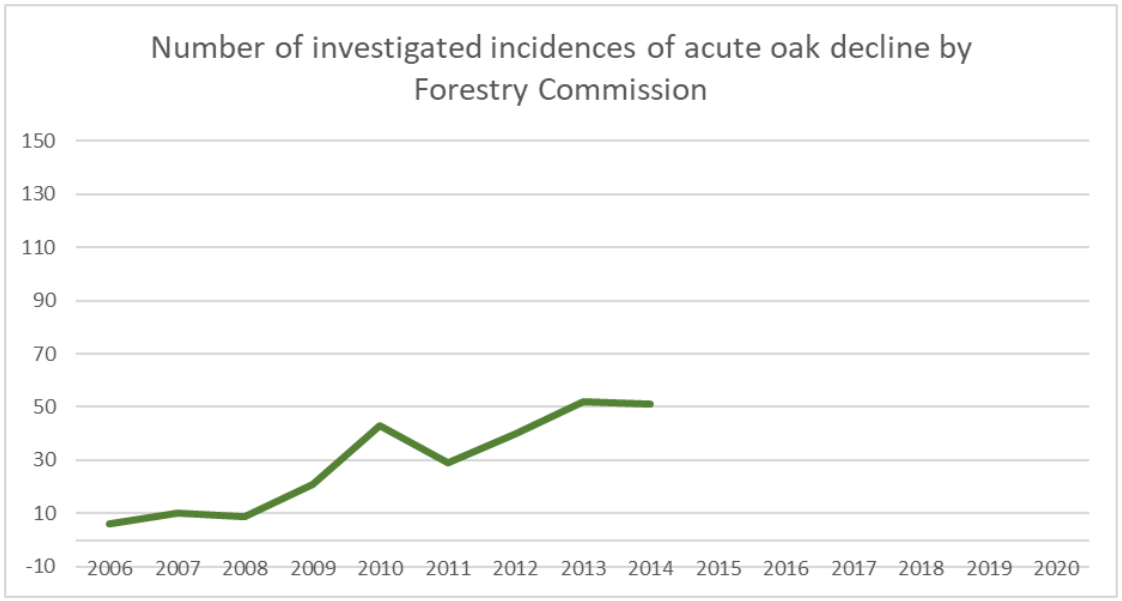
What is extrapolation?



To extrapolate is to estimate an extension of the existing data based on the pattern that data is currently displaying.

This is often represented by a dotted line for something that will happen in the future.

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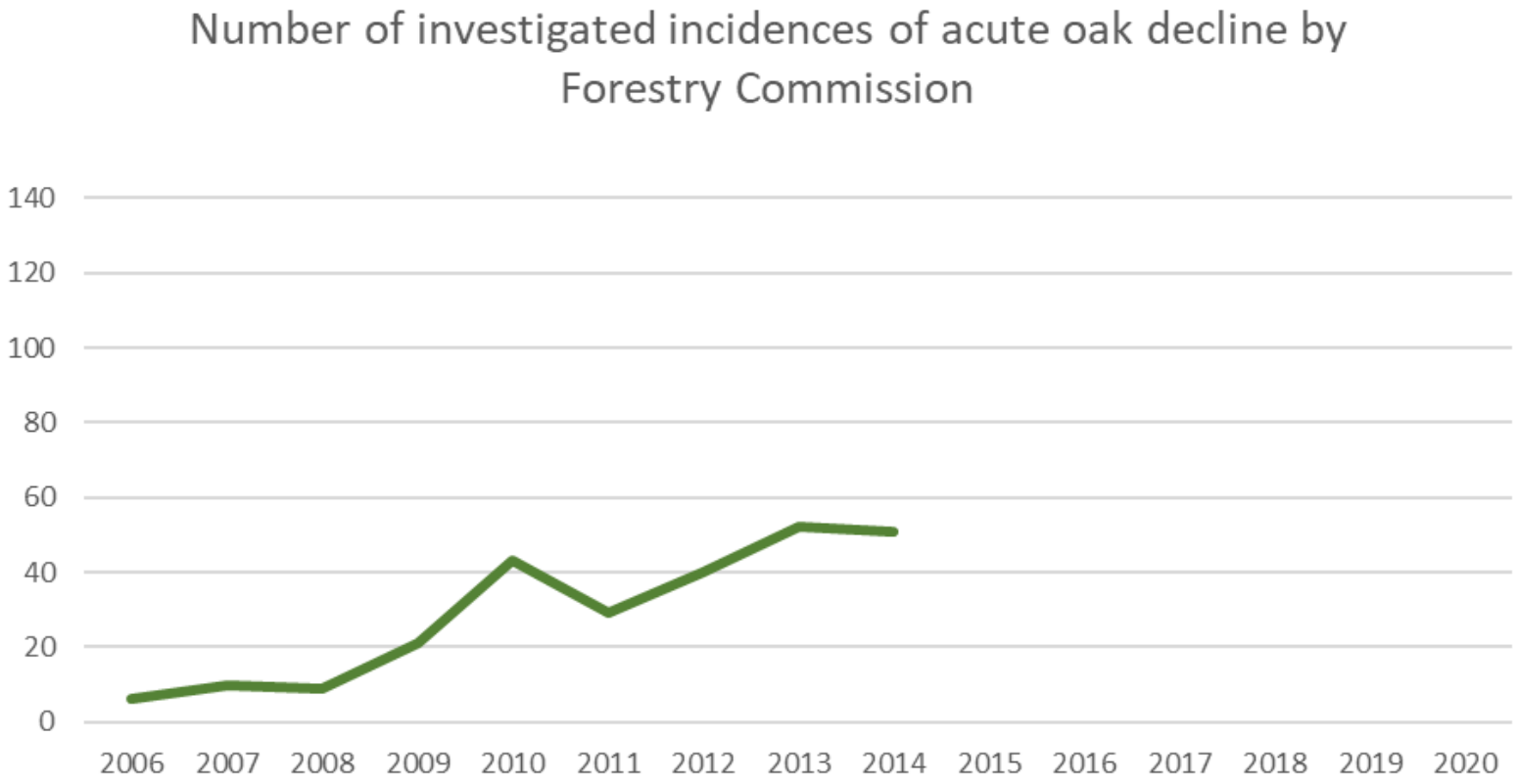
How would you extrapolate this data?



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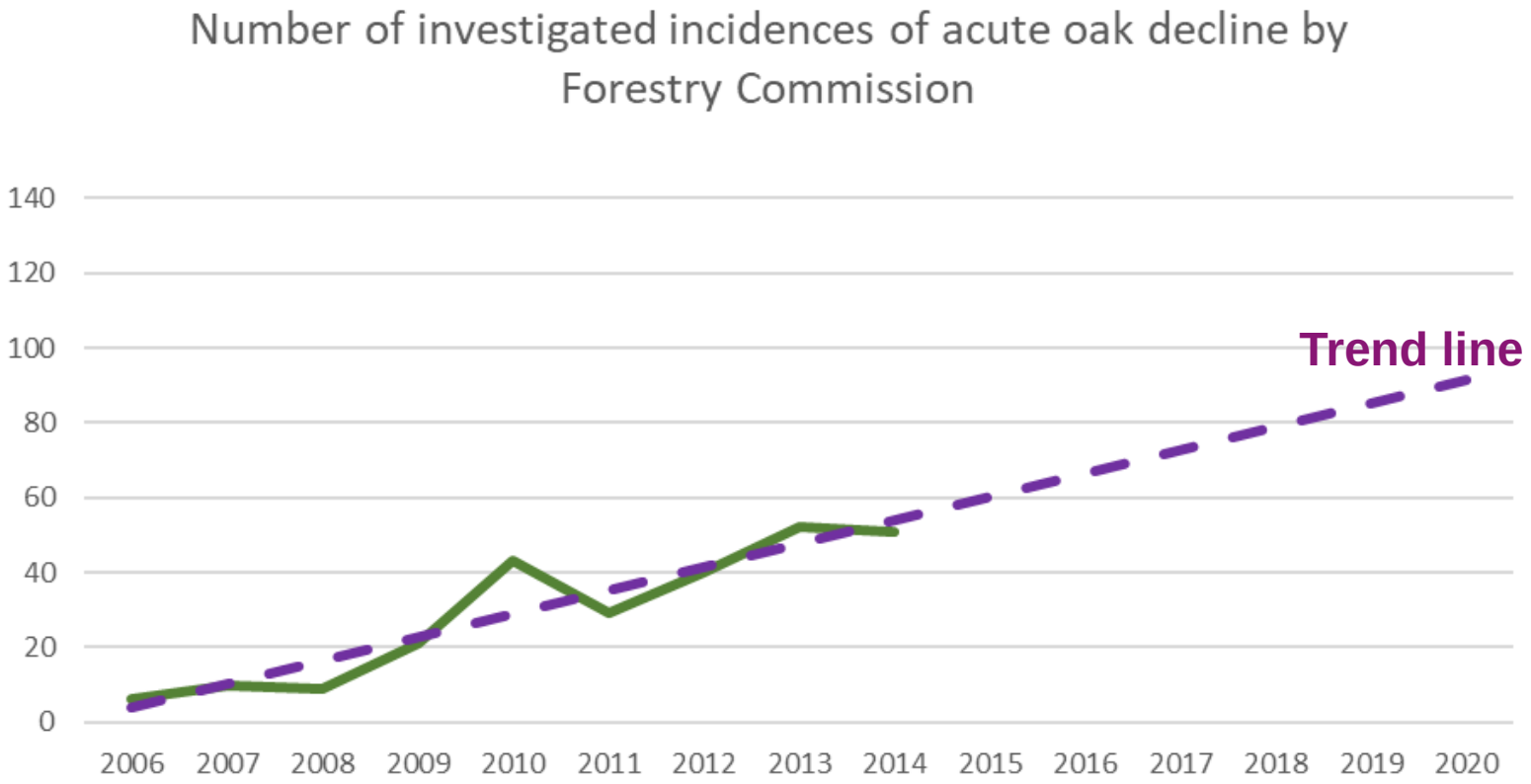
How would you extrapolate this data?



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If Acute Oak Decline was detected in this woodland what would happen to each species?

Think about

- **Food webs and how species interact with each other**
- **The shape of the line of you draw (does it have to be straight?)**

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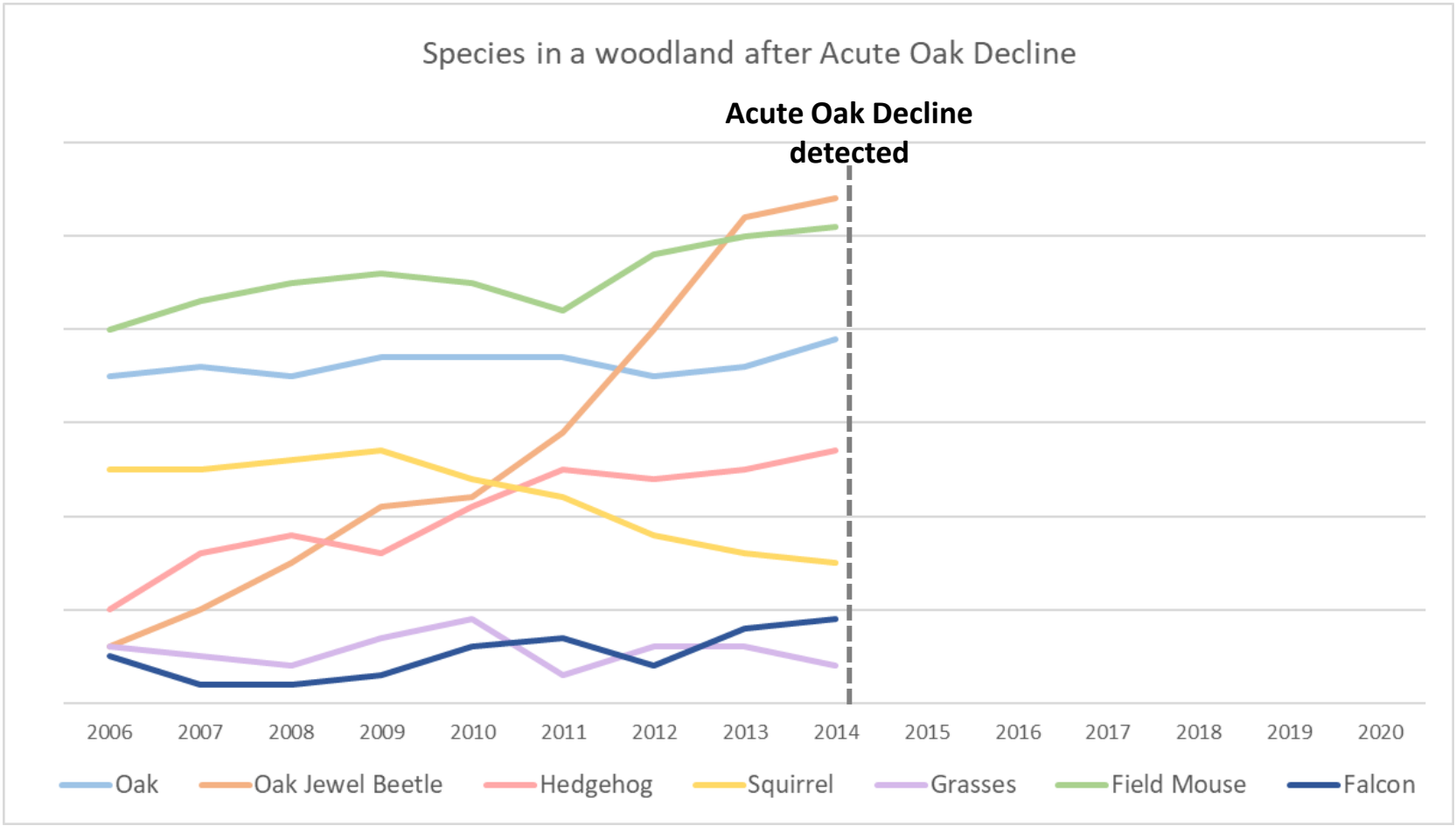

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Location of Parkhurst Forest

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Where is Parkhurst Forest?

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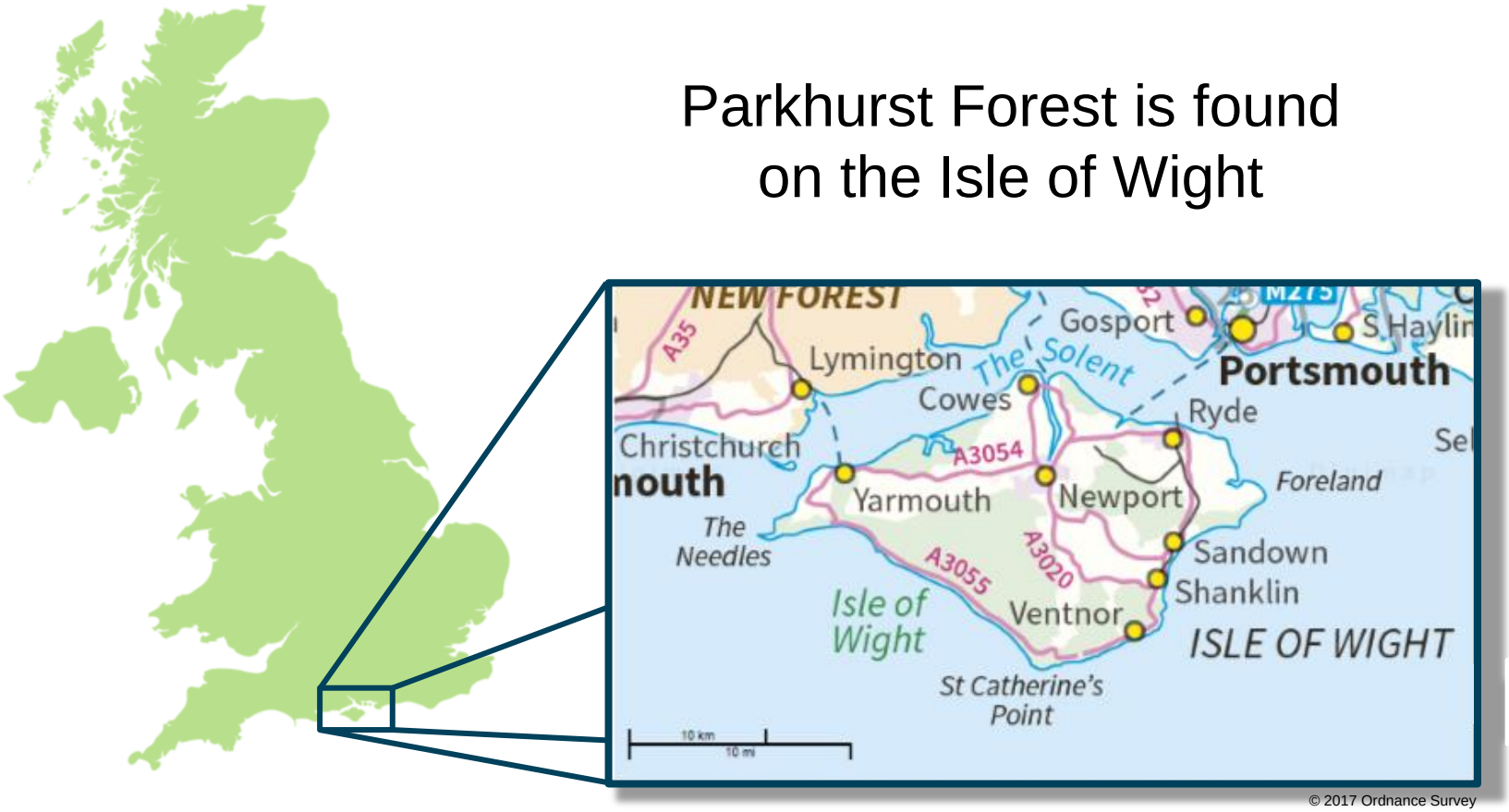
Parkhurst Forest is found on the Isle of Wight



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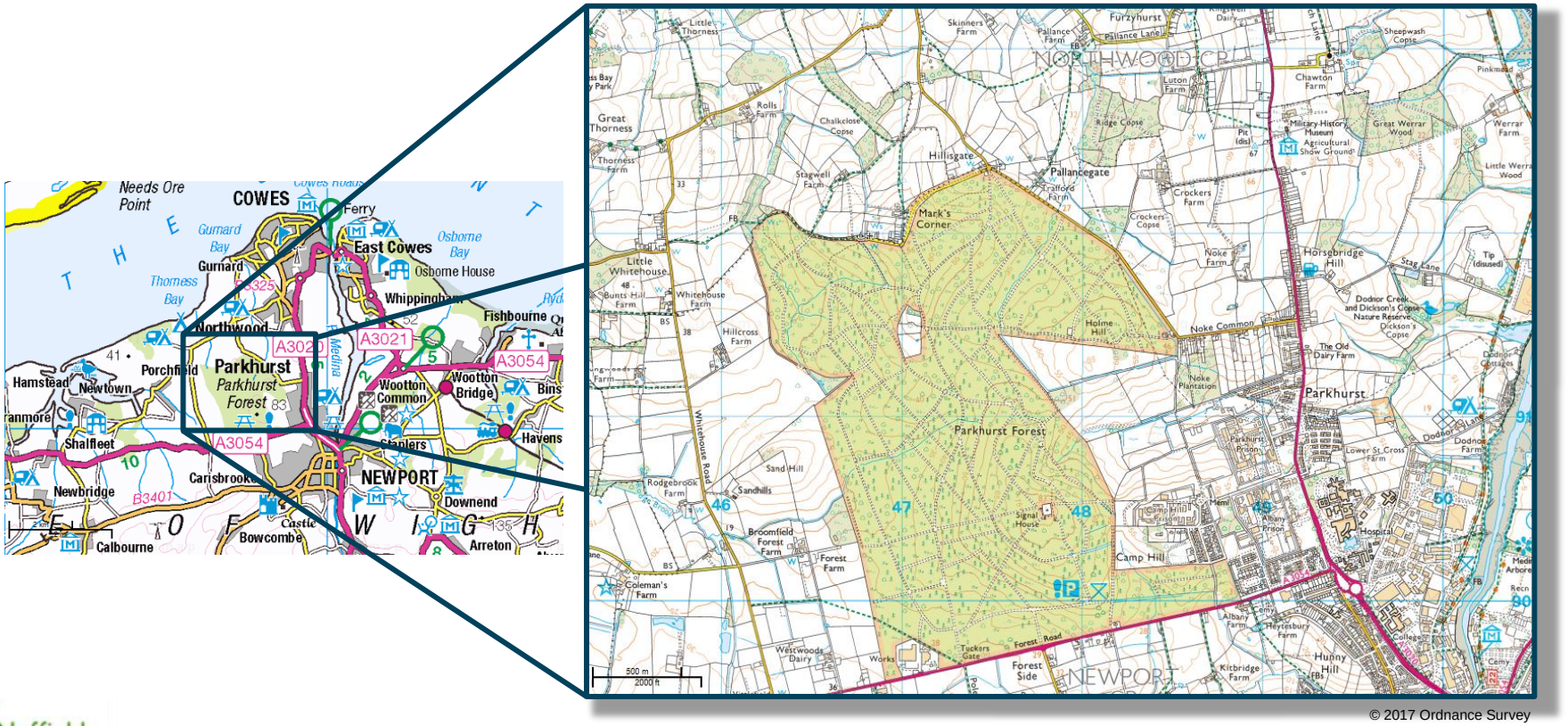
Parkhurst Forest is found near to the centre of the Isle of Wight, equidistant from Cowes and Newport, to the west of the River Medina.



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Describe the site and situation of Parkhurst Forest

What key points could be included in location description?

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Describe the site and situation of Parkhurst Forest

What key points could be included in location description?

Use real places: Country → County → Town

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Describe the site and situation of Parkhurst Forest

What key points could be included in location description?

Use real places: Country → County → Town

Use directions: North East South West

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Describe the site and situation of Parkhurst Forest

What key points could be included in location description?

Use real places: Country → County → Town

Use directions: North East South West

Use mapped features: Rivers Main roads

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Woodland Map Skills

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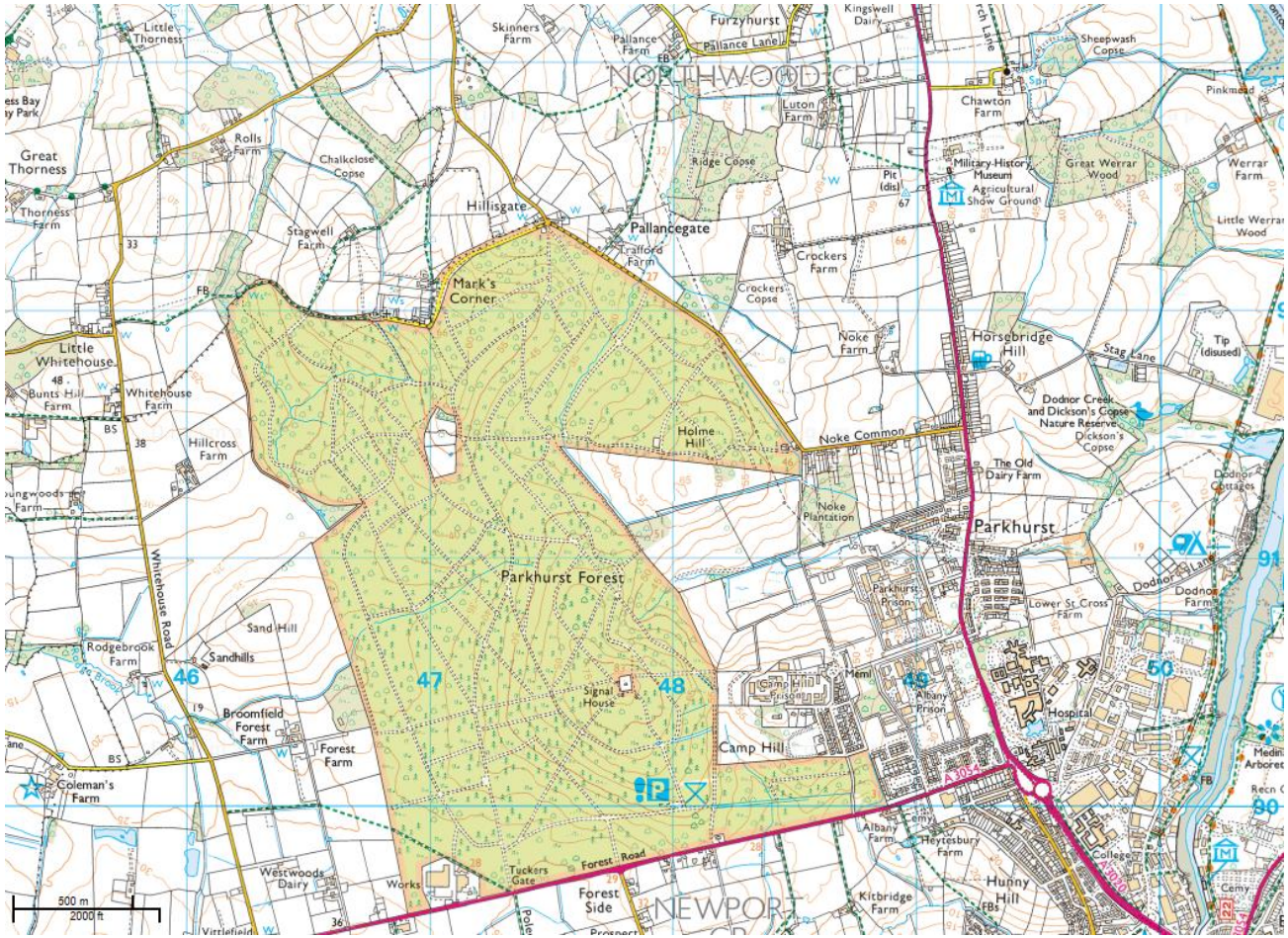

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1. Name the main road that runs along the southern most edge of Parkhurst Forest

Whitehouse Rd A3054

Noke Common Rd A3020

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1. Name the main road that runs along the southern most edge of Parkhurst Forest

A3054

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1. Name the main road that runs along the southern most edge of Parkhurst Forest

A3054

2. Give the four-figure grid reference for the large clearing, found within Parkhurst Forest

4791 4892

9147 9248

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A3054

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4791

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3. Give the six-figure grid reference for Signal House, found within Parkhurst Forest

482920	478905
928485	912470

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3. Give the six-figure grid reference for Signal House, found within Parkhurst Forest

478905

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3. Give the six-figure grid reference for Signal House, found within Parkhurst Forest

478905

4. How many metres above sea level is Signal House?

75 80

83 65

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3. Give the six-figure grid reference for Signal House, found within Parkhurst Forest

478905

4. How many metres above sea level is Signal House?

83

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5. What is the straight-line distance from the most northerly point in Parkhurst Forest to its most southerly point?

8.9km	5.1km
2.5km	3.1km

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5. What is the straight-line distance from the most northerly point in Parkhurst Forest to its most southerly point?

3.1km

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5. What is the straight-line distance from the most northerly point in Parkhurst Forest to its most southerly point?

3.1km

6. What is the shortest distance possible between Parkhurst Forest and the River Medina?

2.1km

1.7km

1.3km

1.0km

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3.1km

6. What is the shortest distance possible between Parkhurst Forest and the River Medina?

1.3km

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7. What is found in grid square 4789 that may have an impact on the ecology in Parkhurst Forest?

Works / Industrial Site

Prison

Farm

Housing

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7. What is found in grid square 4789 that may have an impact on the ecology in Parkhurst Forest?

Works / Industrial Site

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7. What is found in grid square 4789 that may have an impact on the ecology in Parkhurst Forest?

Works / Industrial Site

8. If you were to walk from the top of Holme Hill to Camp Hill Prison, what bearing would you have taken?

114°

24°

156°

336°

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156°

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Woodland Species Data

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Species found in a temperate woodland

Number of species	1980	2015
Tree A	2782	1803
Tree B	1554	1960
Tree C	996	1277
Tree D	631	620
Tree E	40	121
Tree F	16	57

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Species found in a temperate woodland

Is this discrete data (each species stands alone) or continuous data (Species A continues on from Species B etc)?

Number of species	1980	2015
Tree A	2782	1803
Tree B	1554	1960
Tree C	996	1277
Tree D	631	620
Tree E	40	121
Tree F	16	57

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Species found in a temperate woodland

How might you present this discrete data?

Number of species	1980	2015
Tree A	2782	1803
Tree B	1554	1960
Tree C	996	1277
Tree D	631	620
Tree E	40	121
Tree F	16	57

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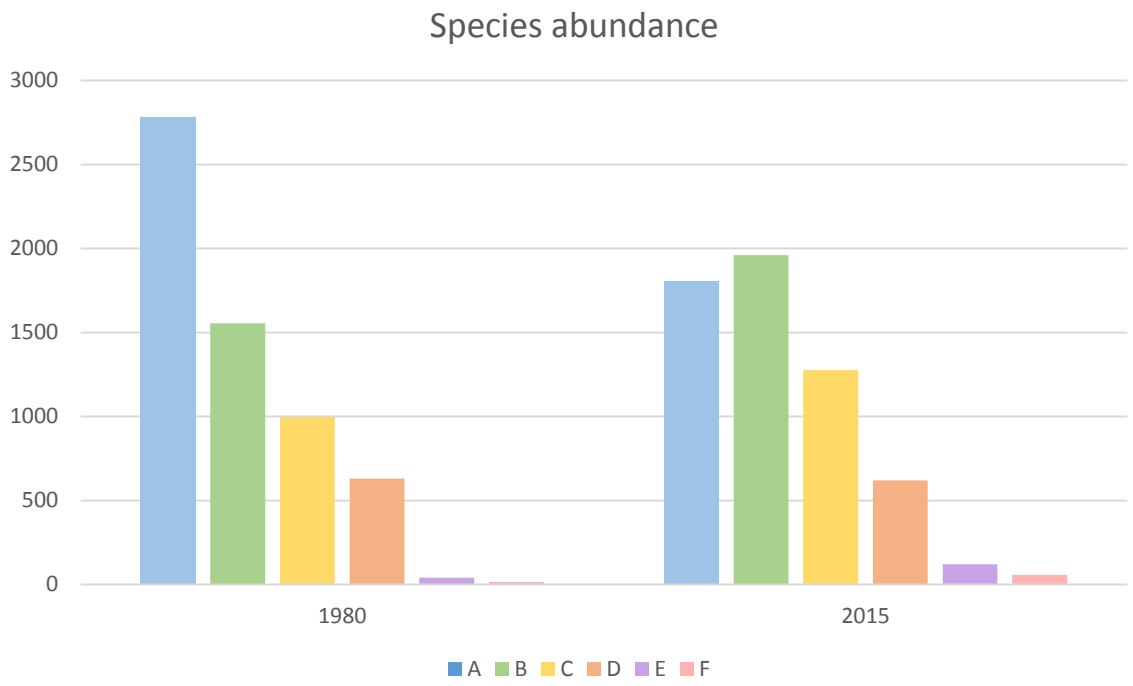
You could present the data in bar charts:



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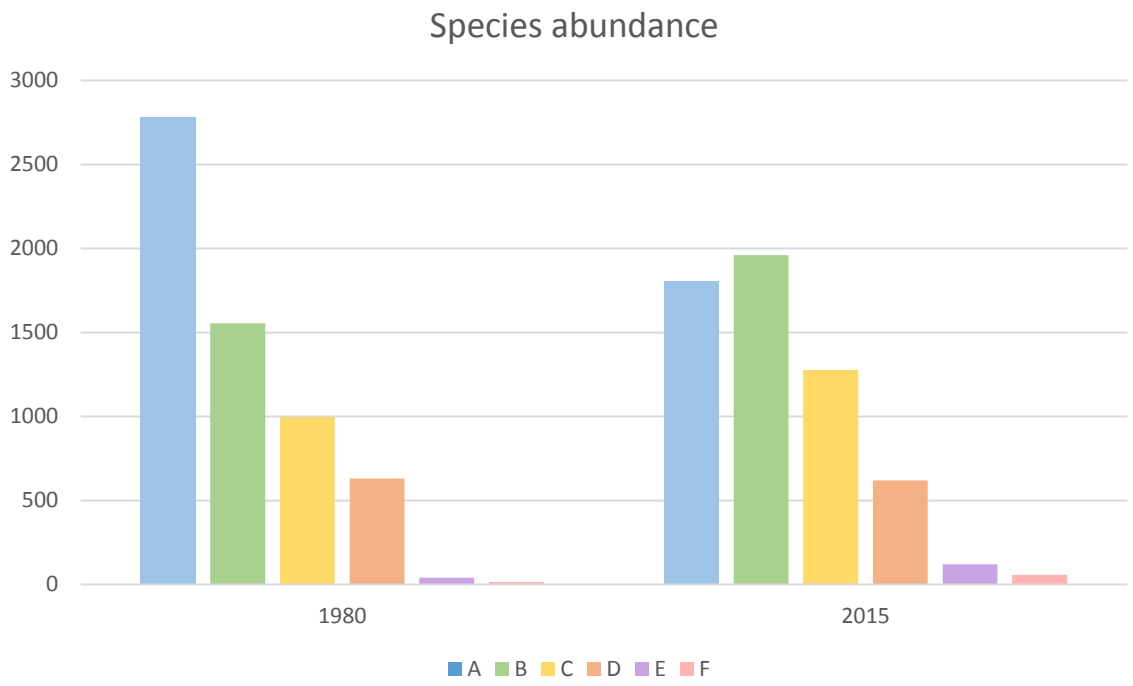

What problems can you see with this method?

Think about how easy it is to compare the data between the two years

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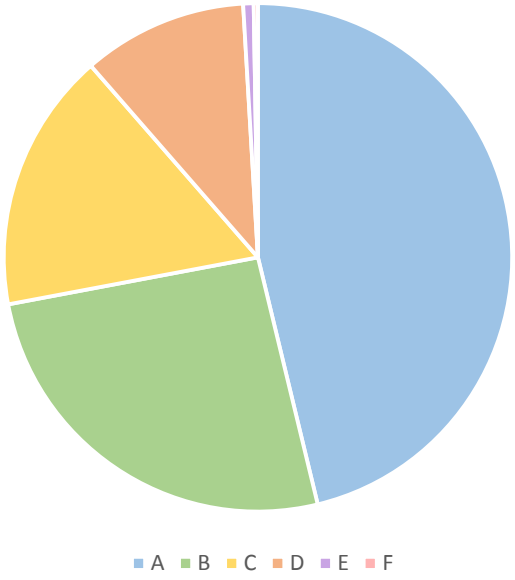
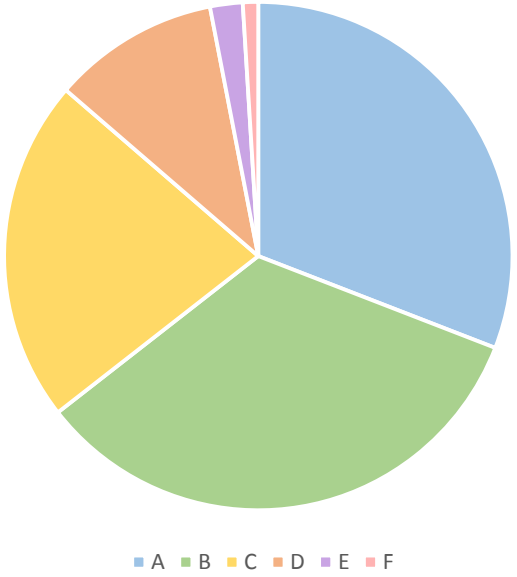
You could present the data in pie charts:

Species abundance in 1980



Species abundance in 2015



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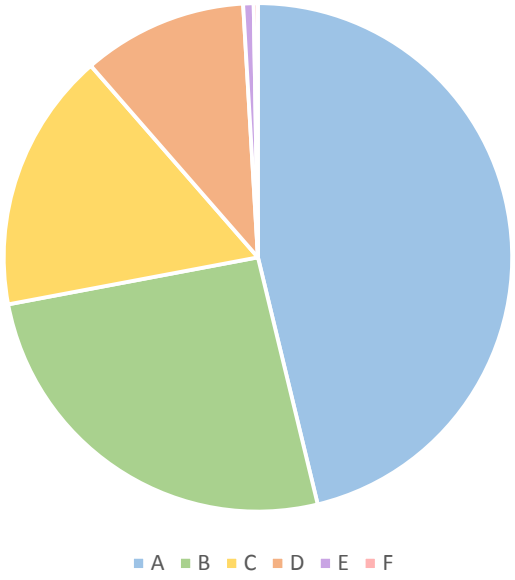
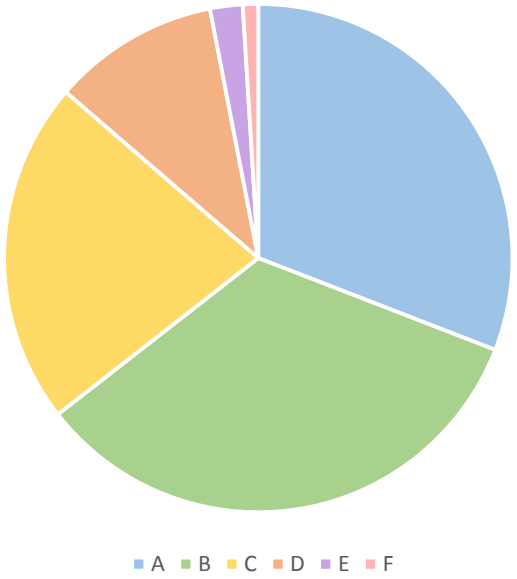
Species abundance in 1980



Species abundance in 2015



What problems can you see with this method?

Think about how easy it is to read the data for small numbers of a species

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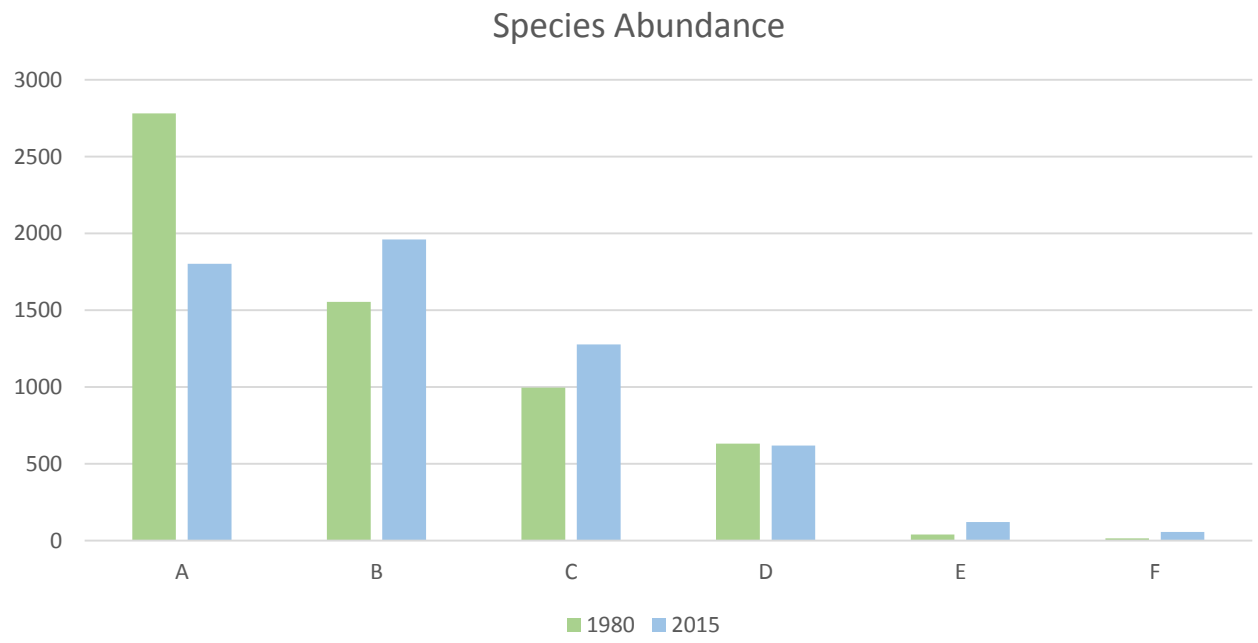
You could present the data in a comparative bar chart:



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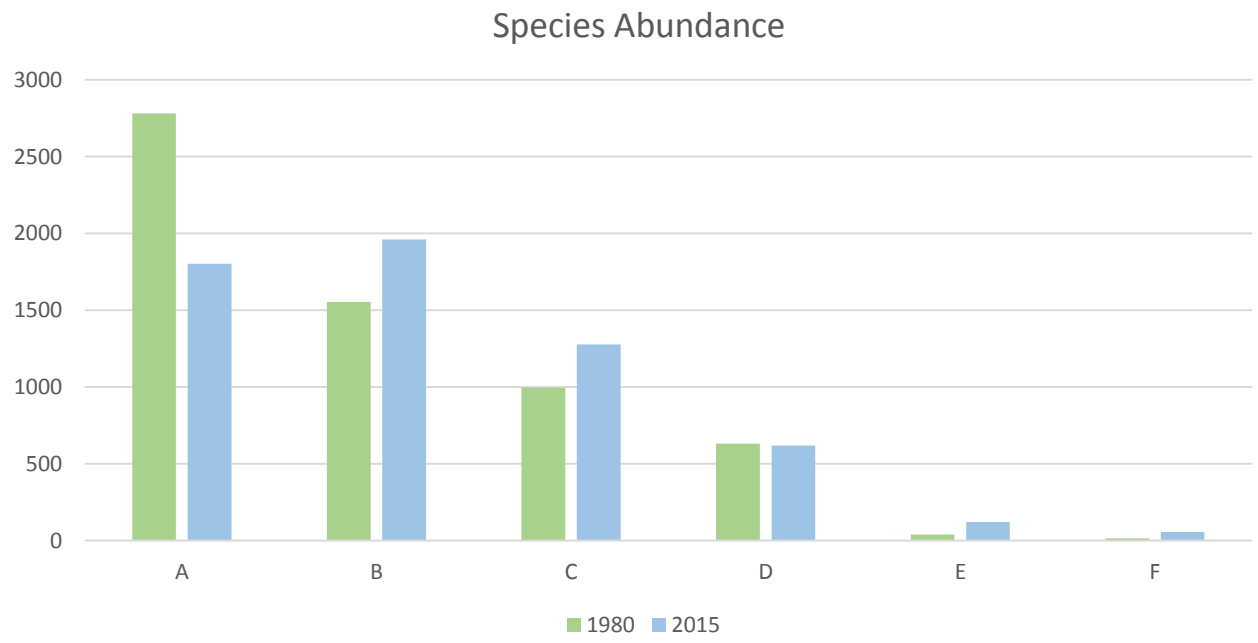

What problems can you see with this method?

Think about the difference between the highest value and the lowest

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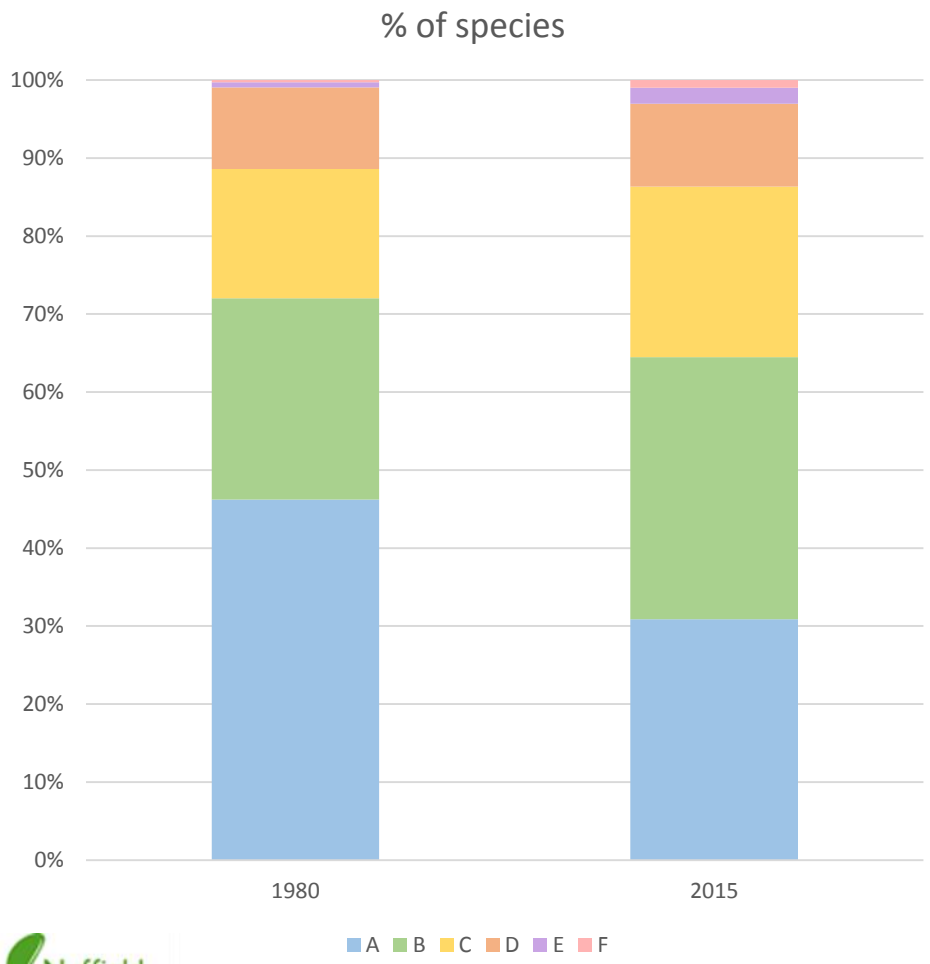

You could present the data in a composite bar chart:

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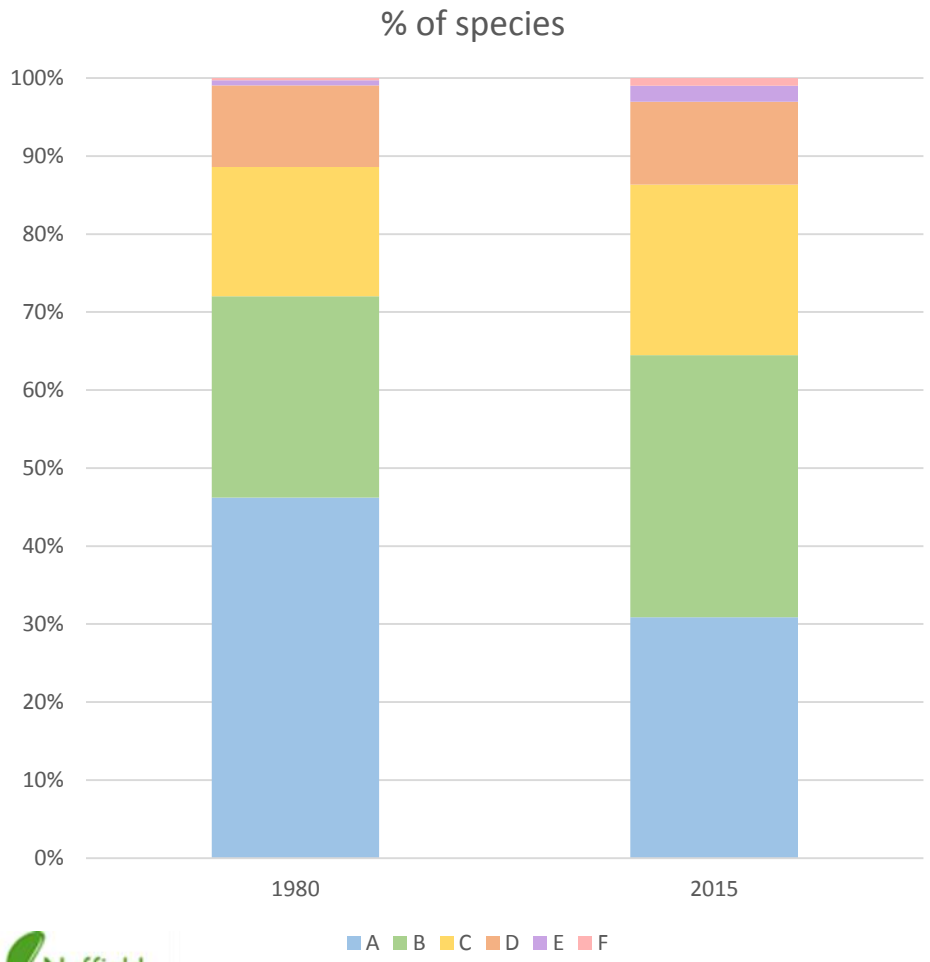

You could present the data in a composite bar chart:

What problems can you see with this method?

Think about the ability to know how many there are of each species

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Acute Oak Decline

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Acute Oak Decline is a problem from which some oak trees suffer. Trees can become infected by bacteria that can cause them to stop growing or die.
It affects thousands of trees across Southern England.

The bacteria infects the area directly under the bark of the tree. This causes cracks to appear in the bark and for essential fluids to come out. This, in time, causes the tree to be starved of nutrients.

Oak ‘weeping’ through bacterial infection

Source: Ken-ichi Ueda CC BY-NC 2.0

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Oak Jewel Beetles lay their eggs under the bark of oak trees. Their numbers have been increasing over the last thirty years. Scientists think that the beetle may be the reason why bacterial infections are spreading through oak trees as the beetle go from tree to tree.

Defra (the Department for the Environment, Farming and Rural Affairs) is currently undertaking a £1.1 million research project into Acute Oak Decline.

Oak Jewel Beetle

Source: Nigel Jones CC BY-NC-ND 2.0

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