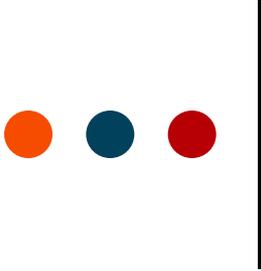




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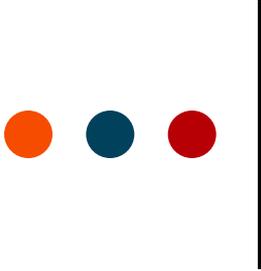
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Objectives

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?

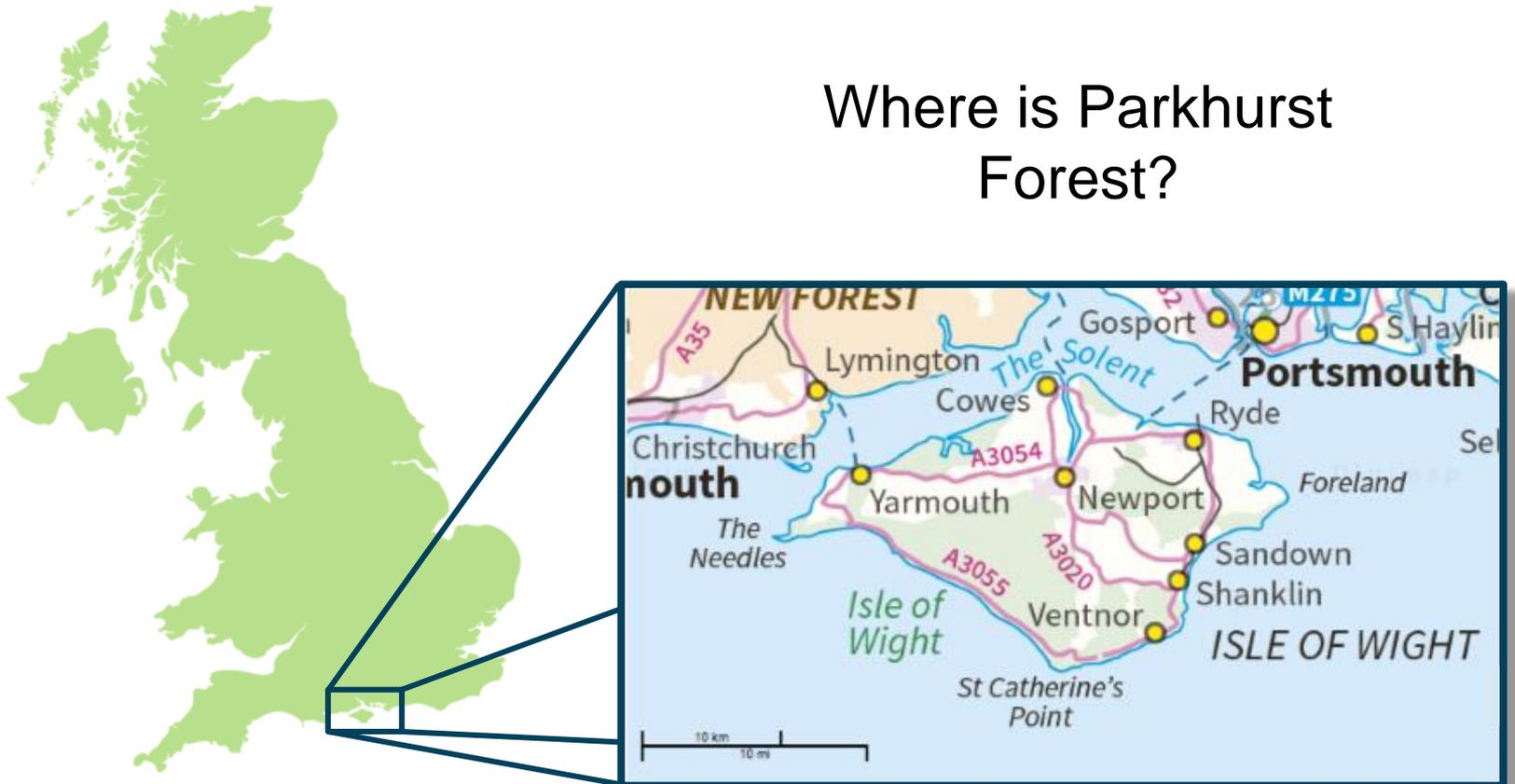
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Where is Parkhurst Forest?



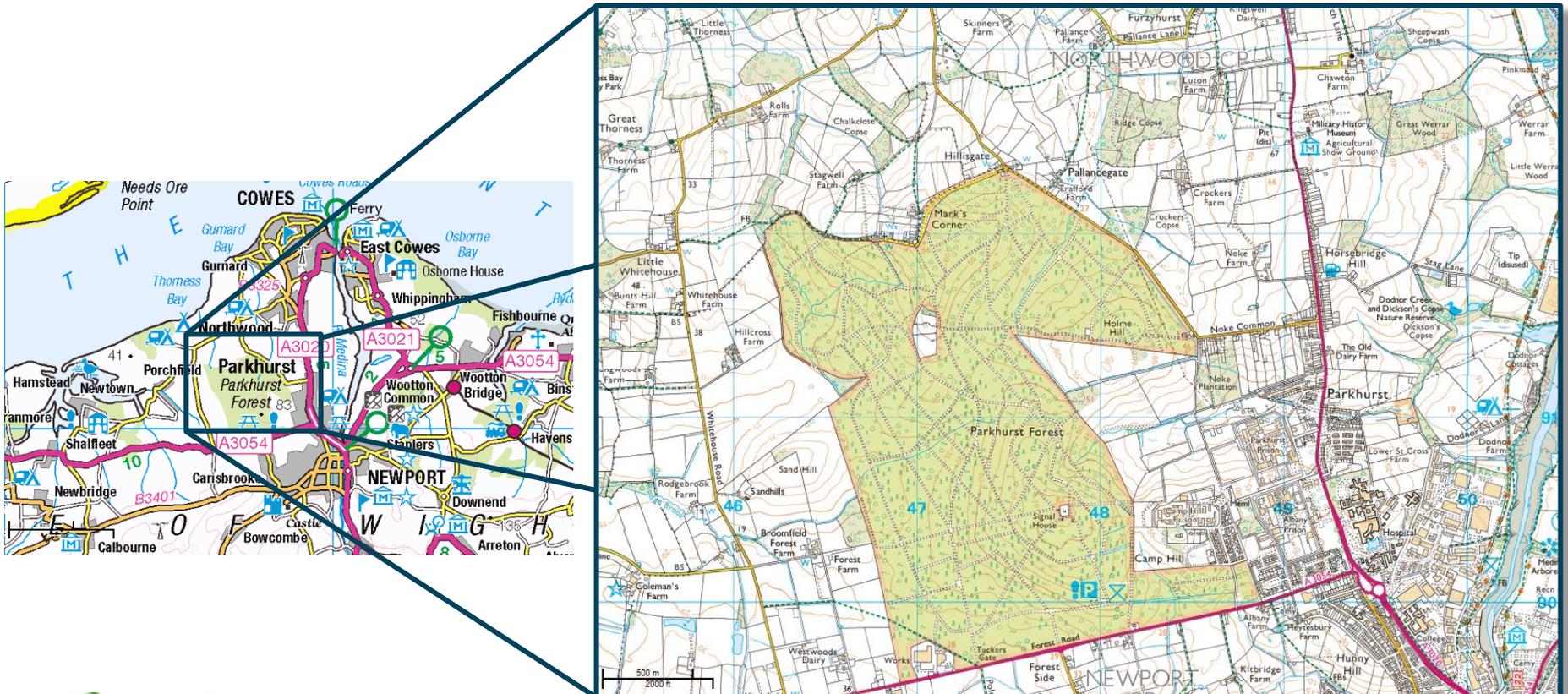
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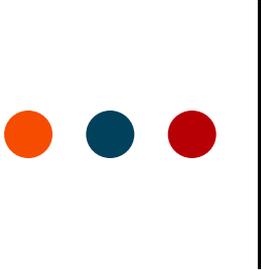
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Where is Parkhurst Forest?



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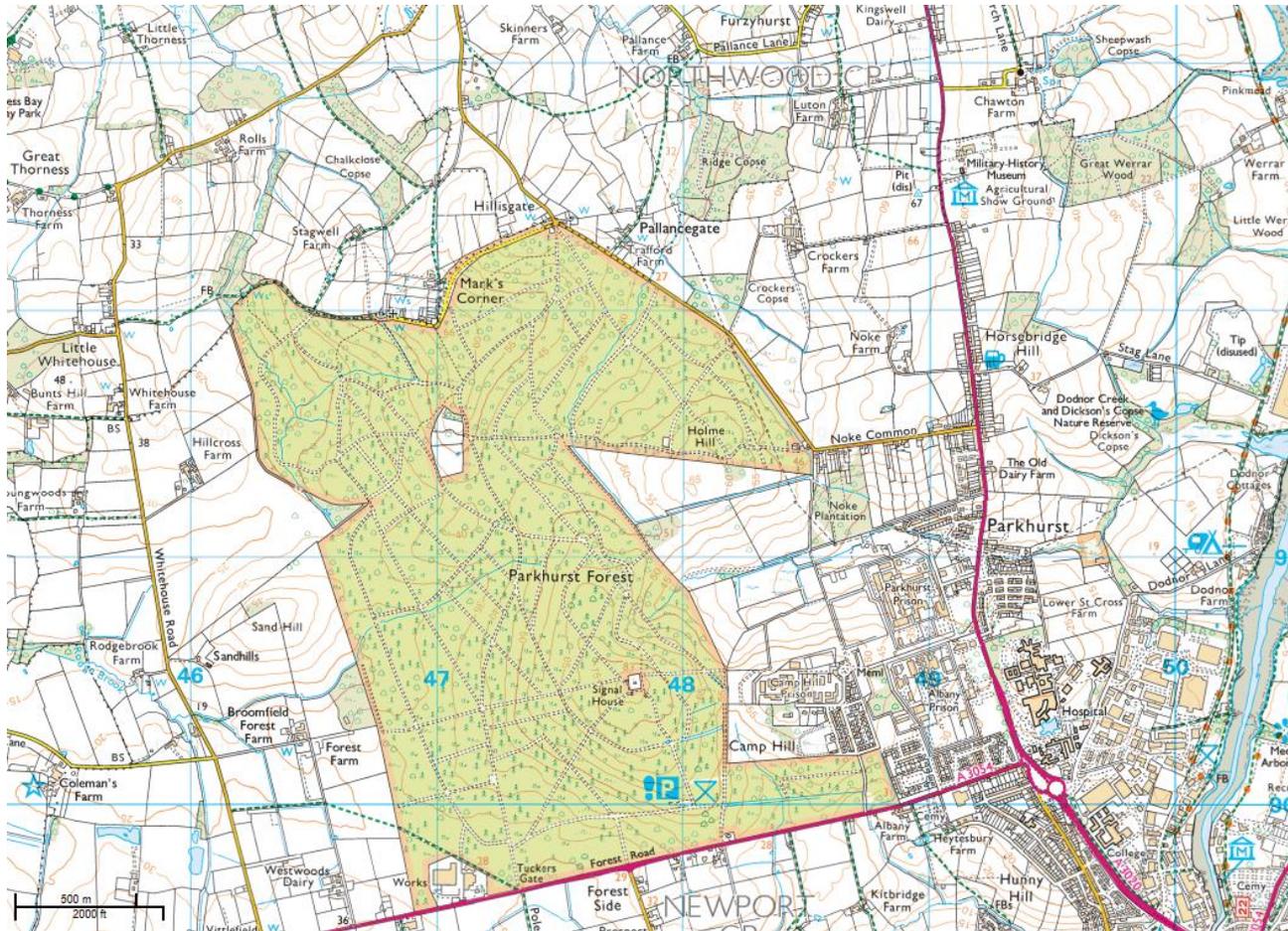
Describe the site and situation of Parkhurst Forest

What key points could be included in location description?

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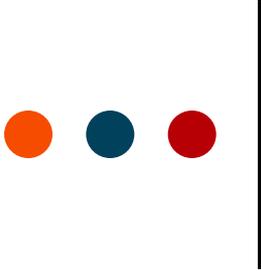
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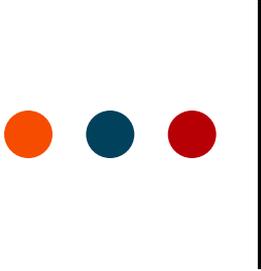


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1. Name the main road that runs along the southern most edge of Parkhurst Forest



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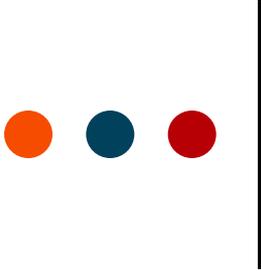
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1. Name the main road that runs along the southern most edge of Parkhurst Forest

A3054



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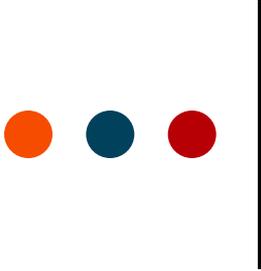
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1. Name the main road that runs along the southern most edge of Parkhurst Forest
2. Give the four-figure grid reference for the large clearing, found within Parkhurst Forest

A3054



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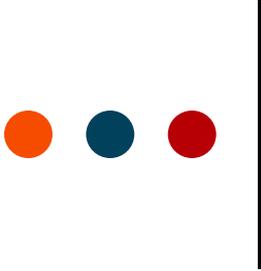
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1. Name the main road that runs along the southern most edge of Parkhurst Forest

A3054

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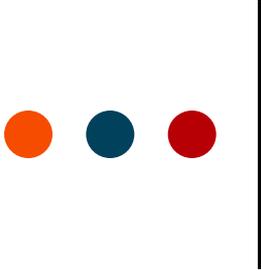
4791



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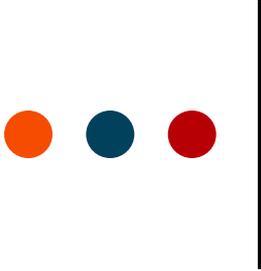
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3. Give the six-figure grid reference for Signal House, found within Parkhurst Forest



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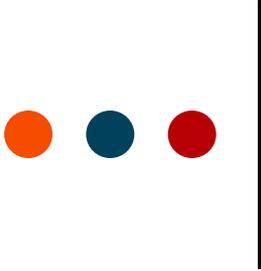
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3. Give the six-figure grid reference for Signal House, found within Parkhurst Forest

478905



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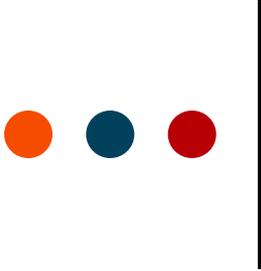
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3. Give the six-figure grid reference for Signal House, found within Parkhurst Forest

478905

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



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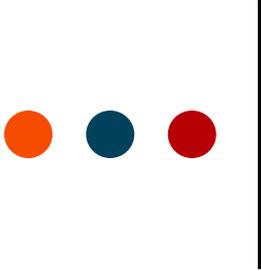
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3. Give the six-figure grid reference for Signal House, found within Parkhurst Forest

478905

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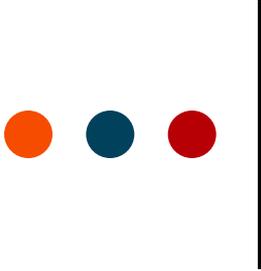
83m



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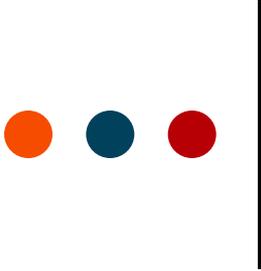


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5. What is the straight-line distance from the most northerly point in Parkhurst Forest to its most southerly point?



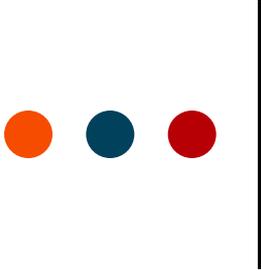
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5. What is the straight-line distance from the most northerly point in Parkhurst Forest to its most southerly point?

3.1km

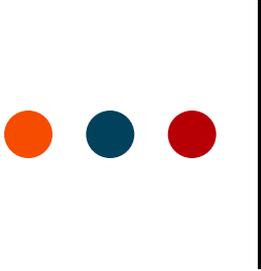


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5. What is the straight-line distance from the most northerly point in Parkhurst Forest to its most southerly point?

3.1km

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



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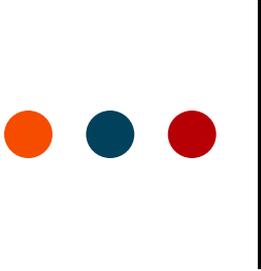
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3.1km

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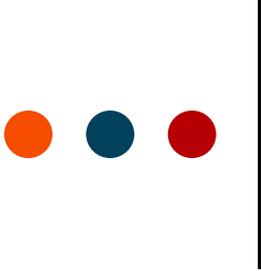
1.3km



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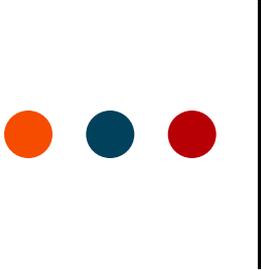


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7. What is found in grid square 4789 that may have an impact on the ecology in Parkhurst Forest?



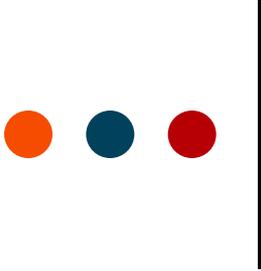
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7. What is found in grid square 4789 that may have an impact on the ecology in Parkhurst Forest?

Works / Industrial Site



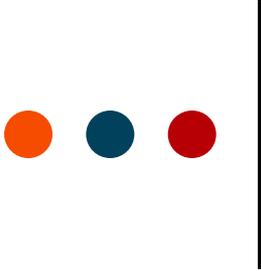
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7. What is found in grid square 4789 that may have an impact on the ecology in Parkhurst Forest?
8. If you were to walk from the top of Holme Hill to Camp Hill Prison, what bearing would you have taken?

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?

156°

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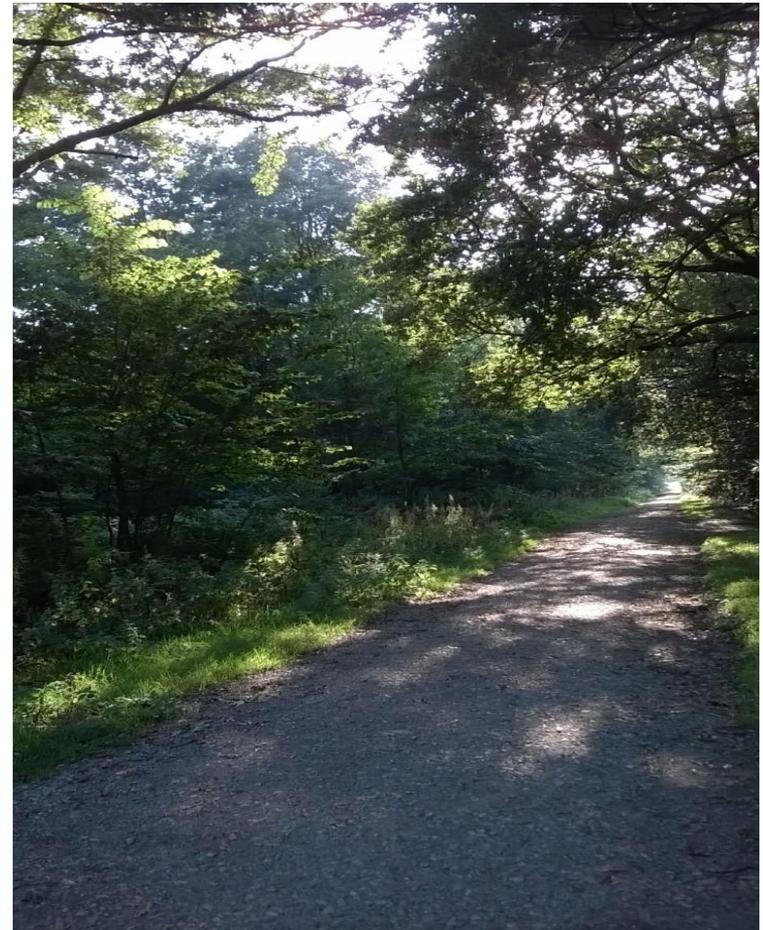
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An Introduction to Parkhurst Forest

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

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.



Source: Chloe Searl

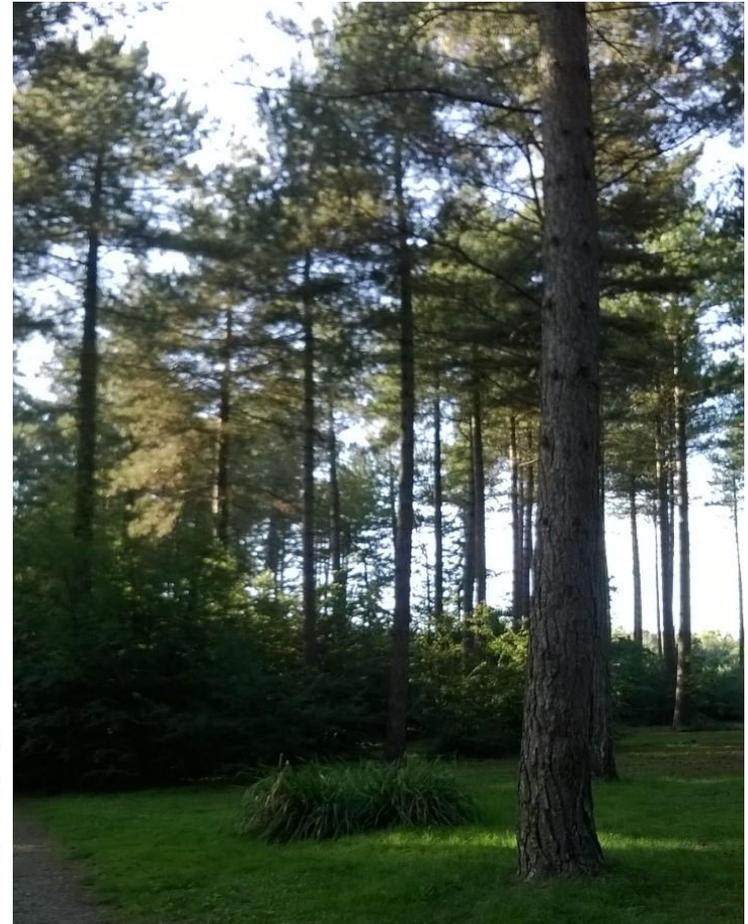
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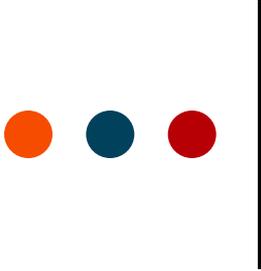
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The forest is an important part of the tourism portfolio of the Island, and is well used by islanders and visitors.

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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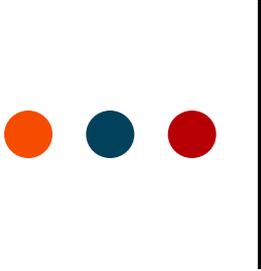
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What is discrete data?

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.



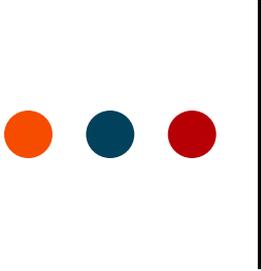
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Discrete or Continuous?

Age



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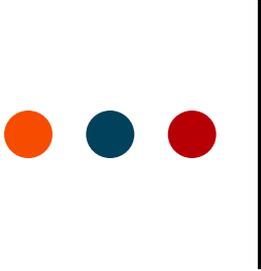
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Discrete or Continuous?

Age

Continuous



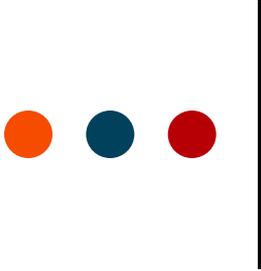
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Discrete or Continuous?

Number of something



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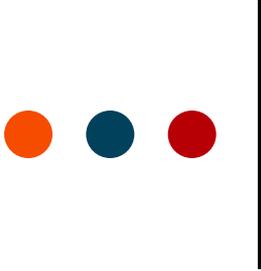
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Discrete or Continuous?

Number of something

Discrete



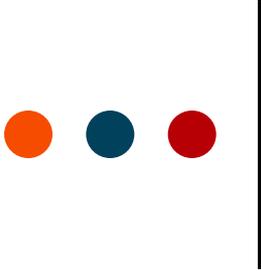
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Discrete or Continuous?

Temperature



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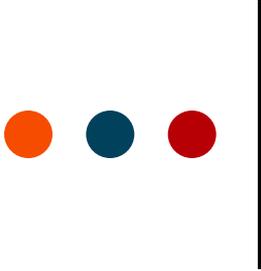
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Discrete or Continuous?

Temperature

Continuous



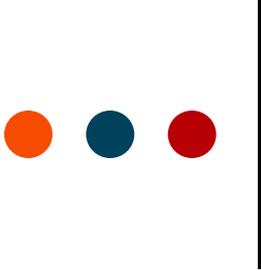
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Discrete or Continuous?

Velocity



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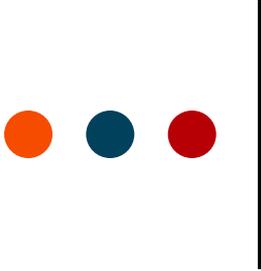
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Discrete or Continuous?

Velocity

Continuous



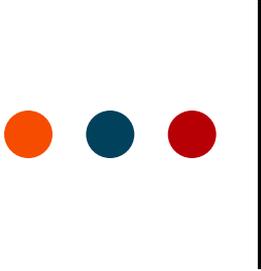
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Discrete or Continuous?

Percentage of something



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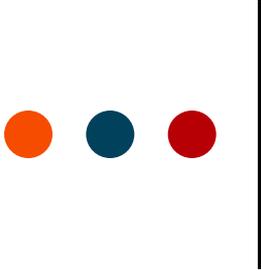
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Discrete or Continuous?

Percentage of something

Discrete



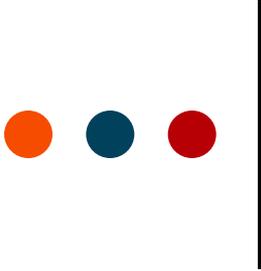
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Discrete or Continuous?

Distance



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Discrete or Continuous?

Distance

Continuous

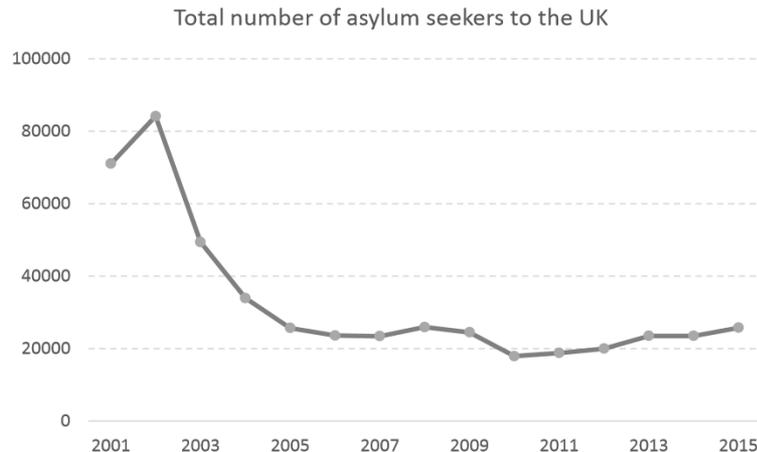
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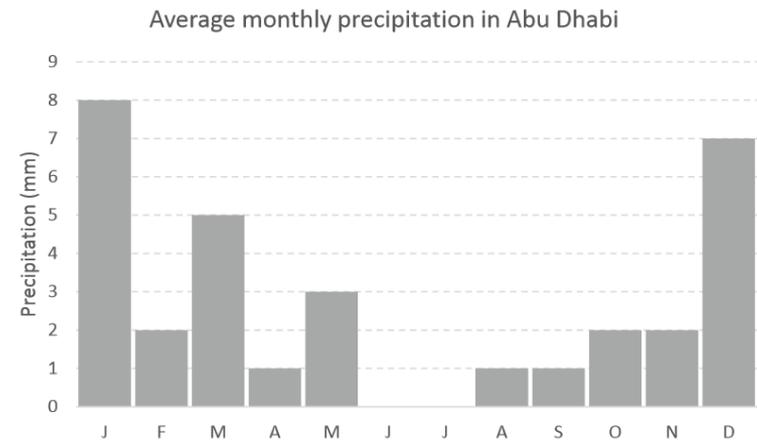
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When using discrete data avoid:

Line graphs



Histograms



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



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Species found in a temperate woodland

Species abundance	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

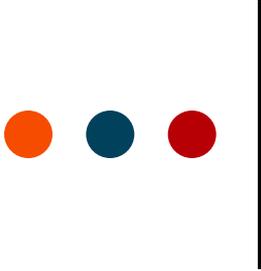


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Species found in a
temperate woodland

What type of data is
this?

Species abundance	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**

**What type of data is
this?**

**How might you
present this data?**

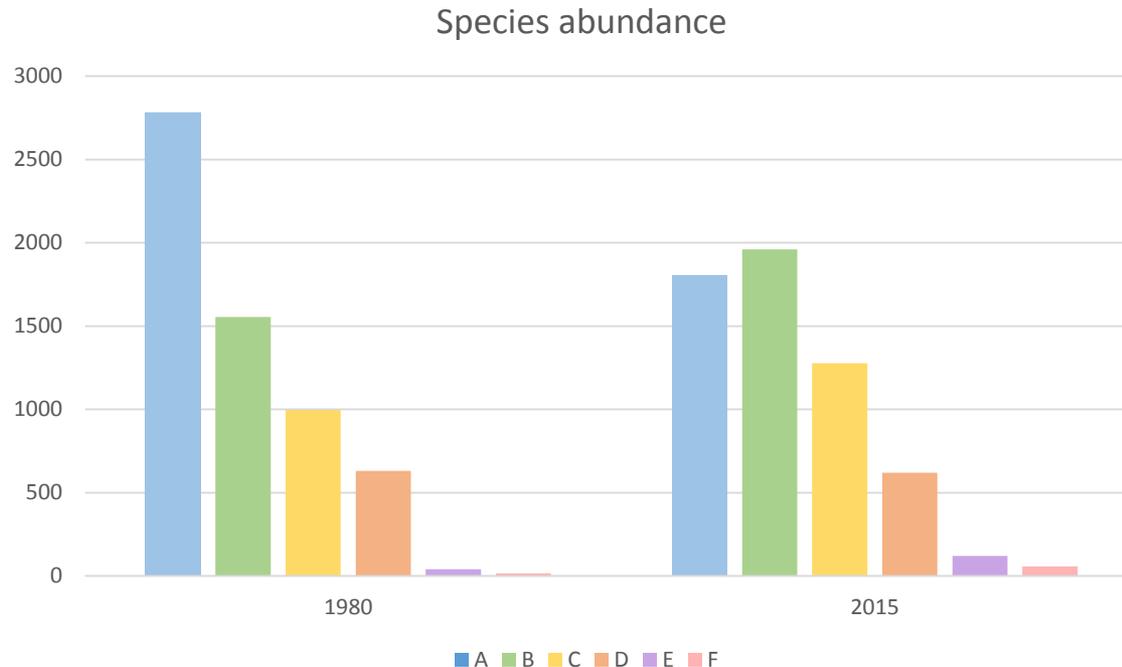
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Tree D	631	620
Tree E	40	121
Tree F	16	57

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You could present the data in bar charts:

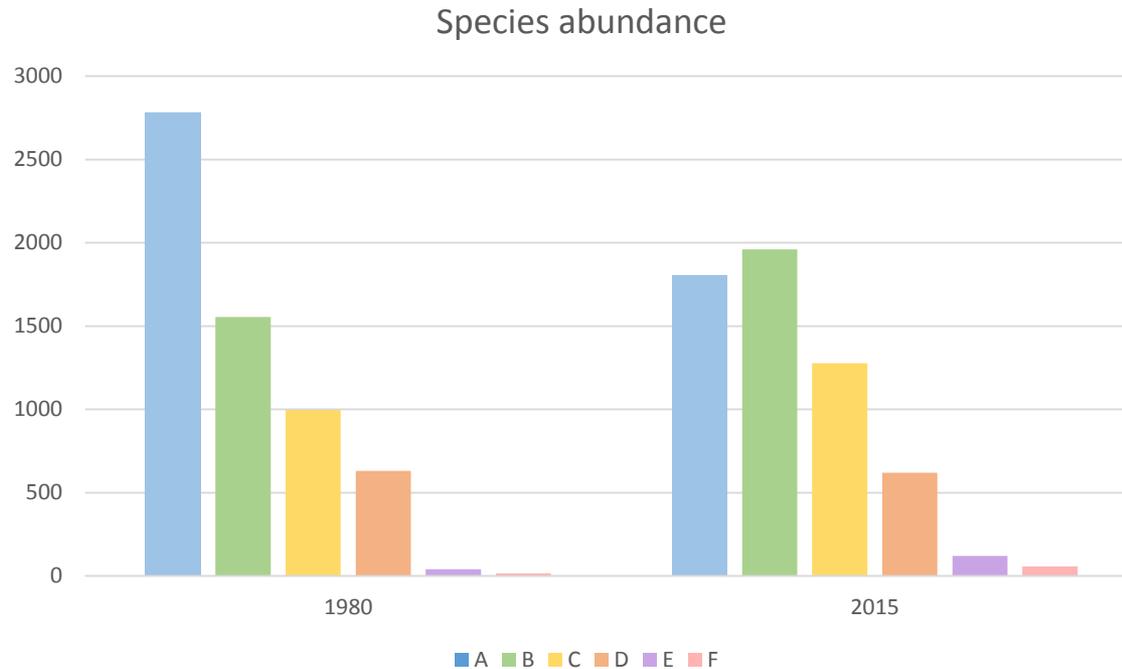


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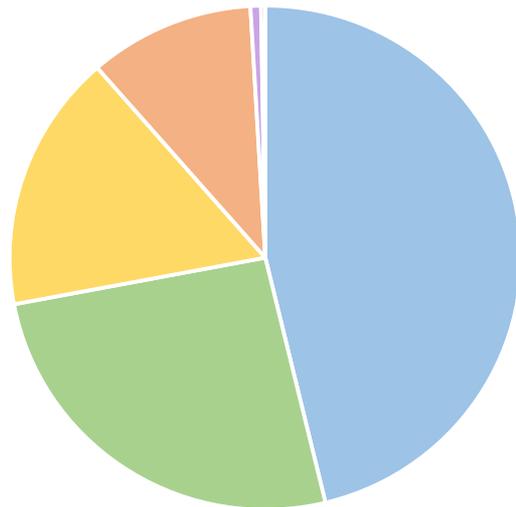


What problems
can you see with
this method?

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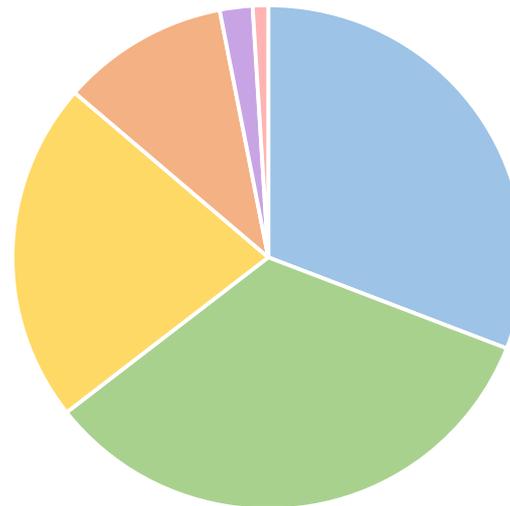
You could present the data in pie charts:

Species abundance in 1980



■ A ■ B ■ C ■ D ■ E ■ F

Species abundance in 2015



■ A ■ B ■ C ■ D ■ E ■ F

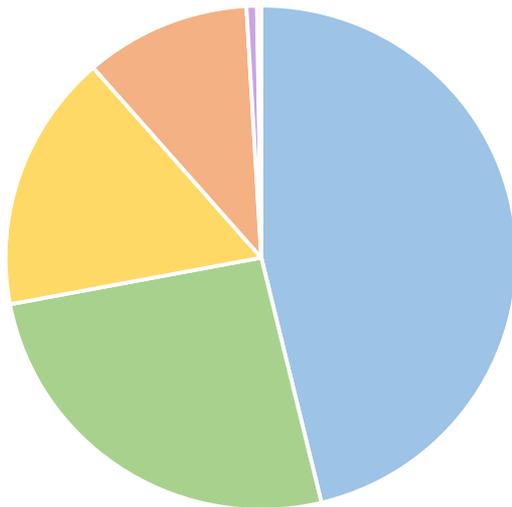
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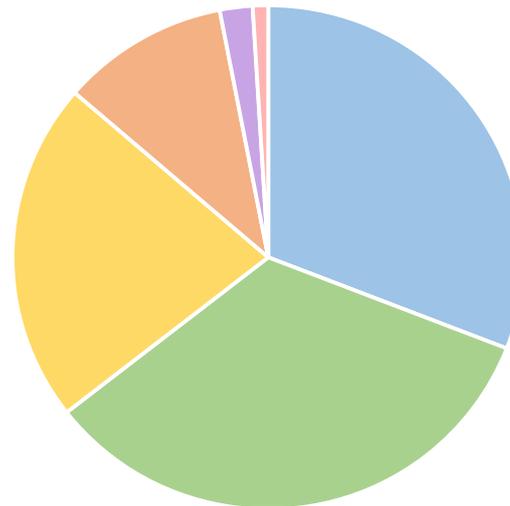
You could present the data in pie charts:

Species abundance in 1980



■ A ■ B ■ C ■ D ■ E ■ F

Species abundance in 2015



■ A ■ B ■ C ■ D ■ E ■ F

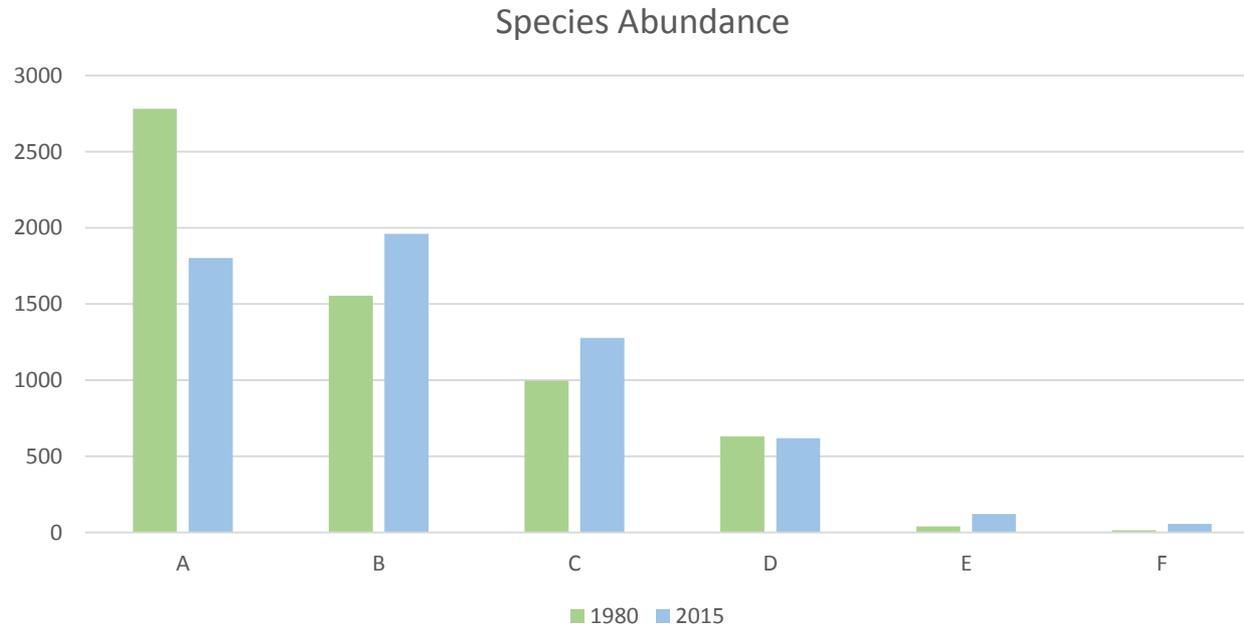
What problems
can you see with
this method?

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You could present the data in a comparative bar chart:

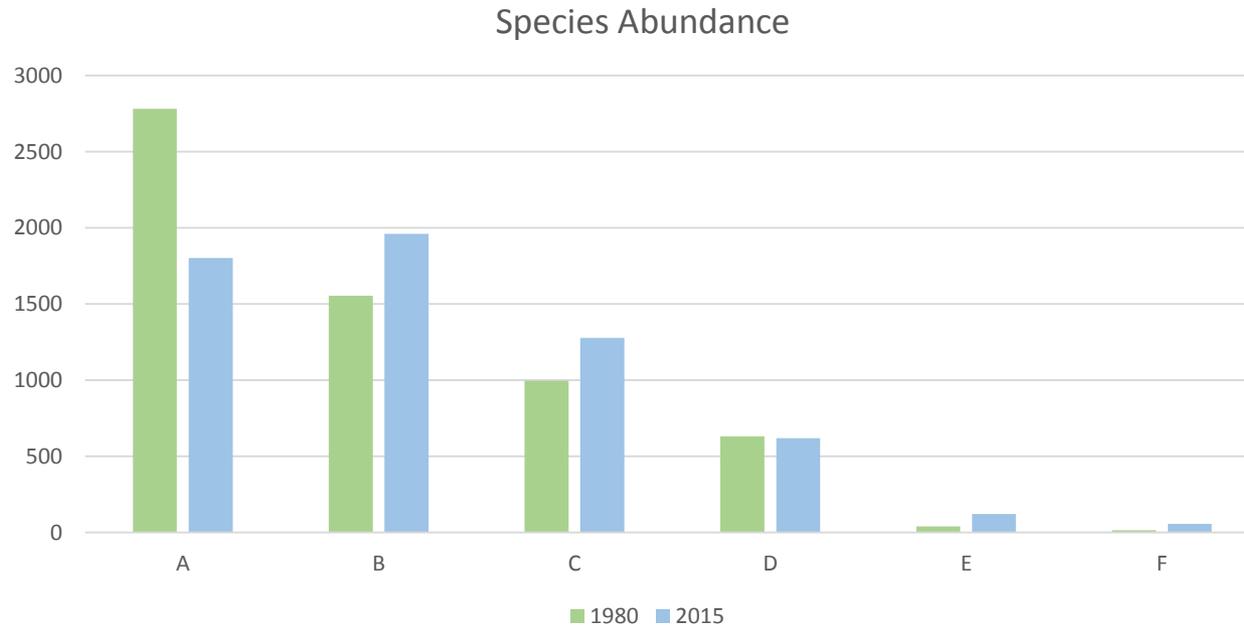


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You could present the data in a comparative bar chart:

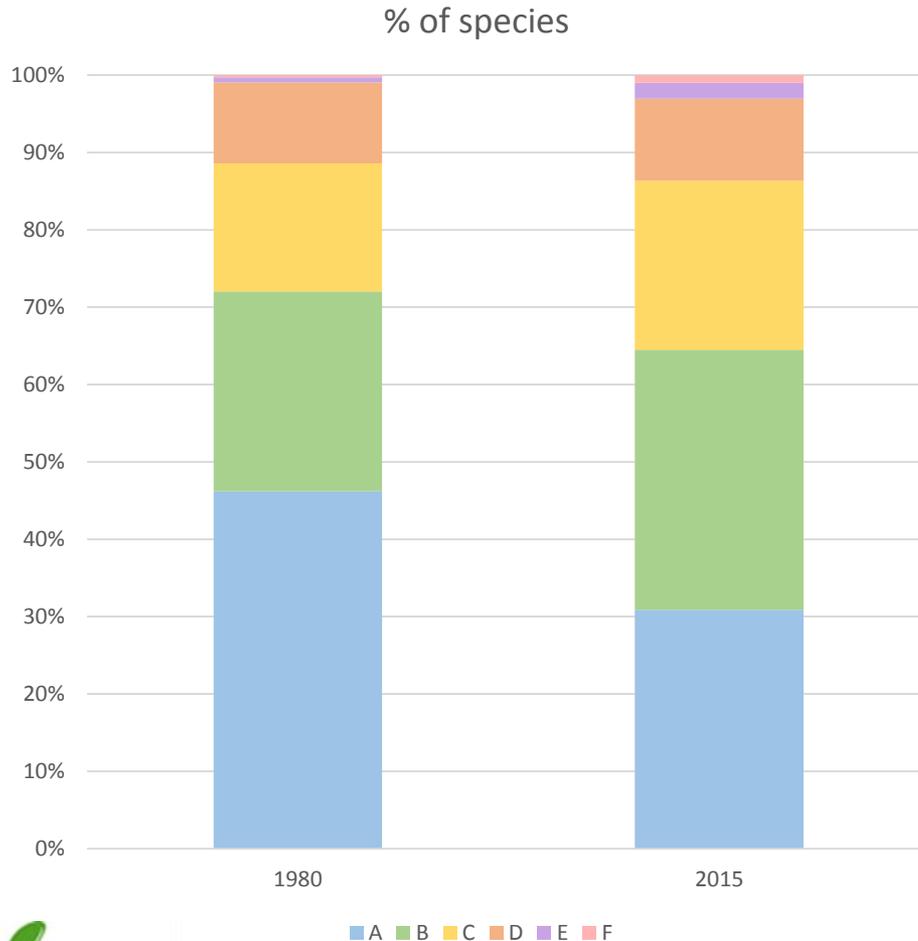


What problems
can you see with
this method?

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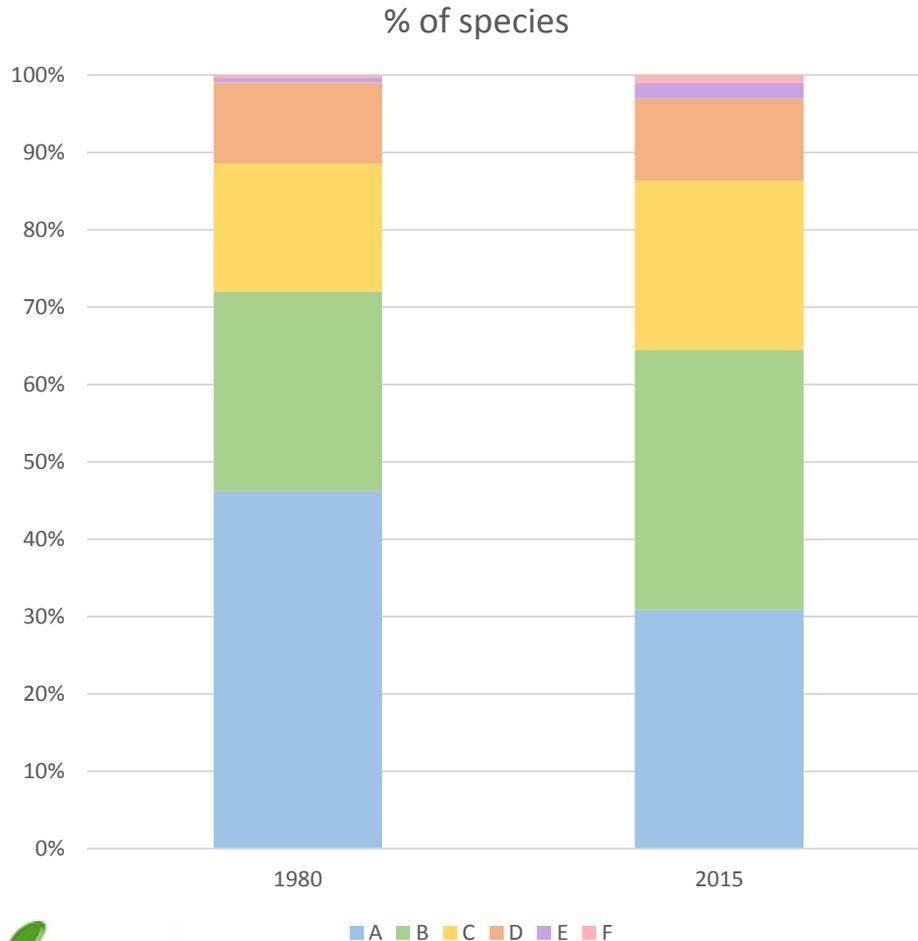


You could present the data
in a composite bar chart:

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You could present the data
in a composite bar chart:

What problems
can you see with
this method?

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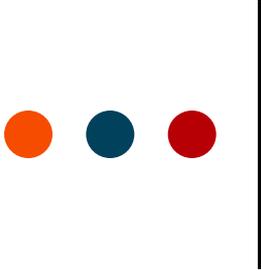
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Parkhurst Forest is undergoing a conservation plan known as the '**Parkhurst Forest Design Plan**' (PFDP). It aims to bring more biodiversity into the woodland and retain its attraction for native red squirrels.

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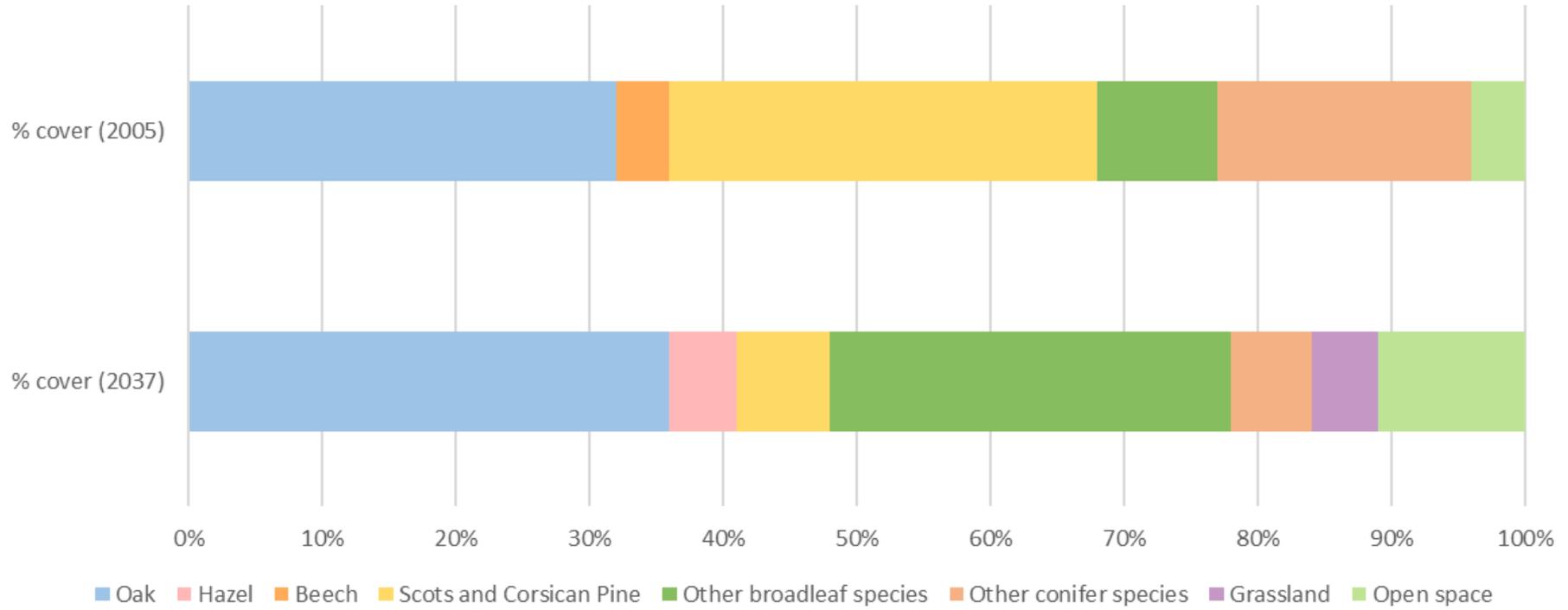
Species	% cover (2005)	% cover (2037)
Oak	32	36
Hazel	0	5
Beech	4	0
Scots and Corsican Pine	32	7
Other broadleaf species	9	30
Other conifer species	19	6
Grassland	0	5
Open space	4	11

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Species composition in Parkhurst Forest
Before and after implementing the PFDP



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Acute Oak Decline

Acute Oak Decline is the general term given to a bacterial infection that affects thousands of trees across Southern England.

The bacteria infects the area directly under the bark of the tree, causing cracks to appear and stem fluid to ooze out.



Oak 'weeping' through bacterial infection

Source: Ken-ichi Ueda CC BY-NC 2.0

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A rise in the numbers of Oak Jewel Beetles, that lay their eggs under the bark of the trees is thought to have increased the number of affected trees, possibly due to the beetle becoming a means for the bacteria to spread between trees.

Acute Oak Decline causes the tree to become starved of nutrients and once infected the tree sees a rapid decline, often resulting in death.

Defra is currently undertaking a £1.1 million research project into Acute Oak Decline.



Oak Jewel Beetle

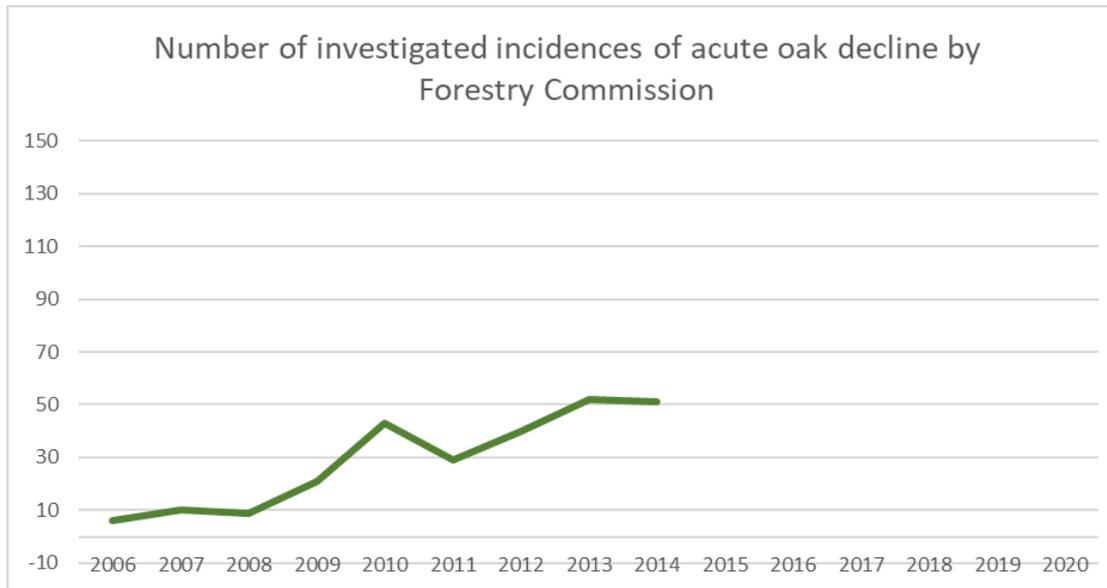
Source: Nigel Jones CC BY-NC-ND 2.0

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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.

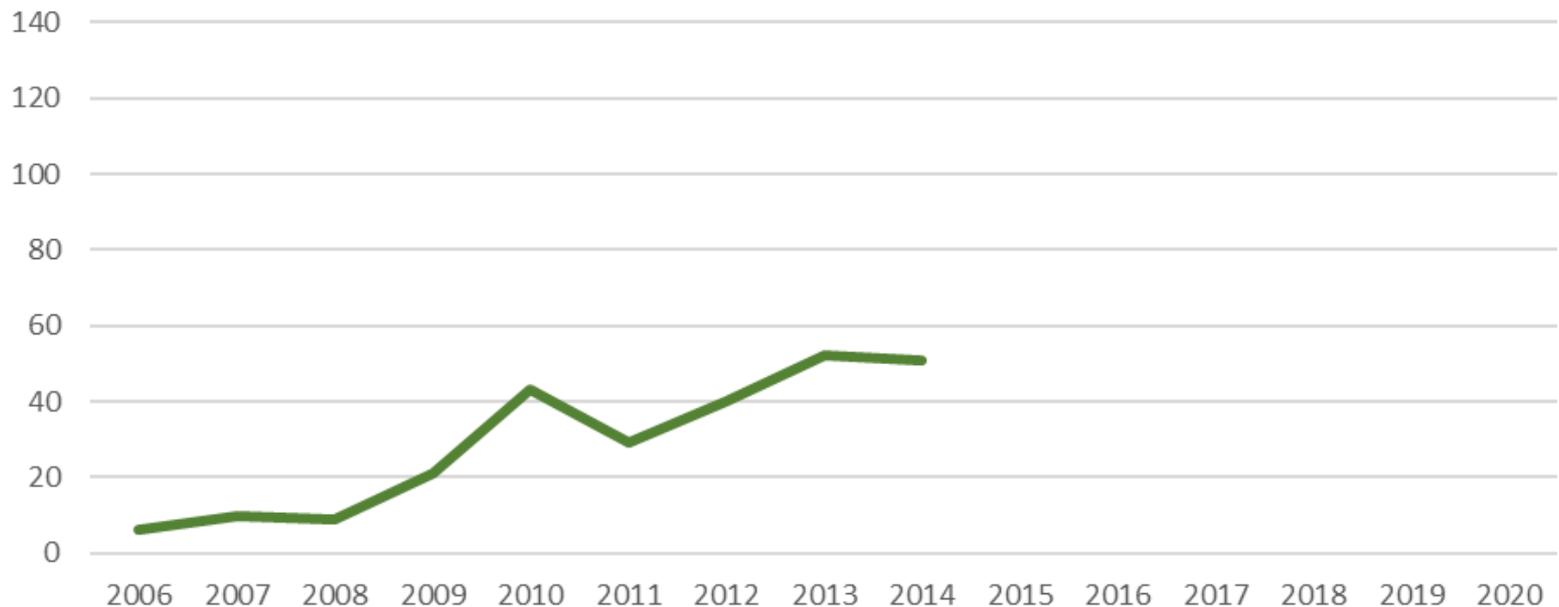
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How would you extrapolate this data?

Number of investigated incidences of acute oak decline by
Forestry Commission



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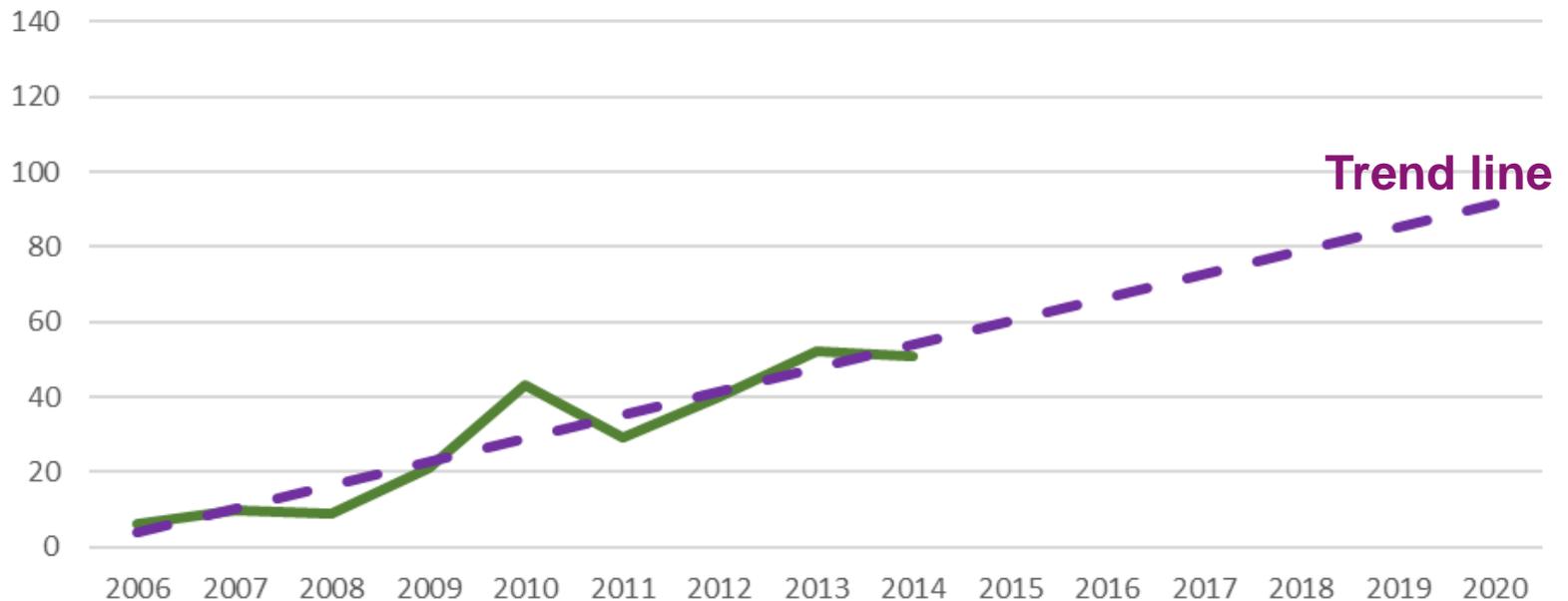
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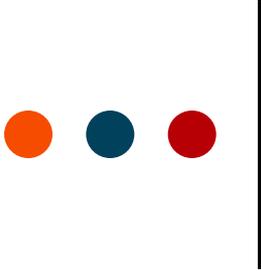
How would you extrapolate this data?

Number of investigated incidences of acute oak decline by
Forestry Commission



Trend line

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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?)**

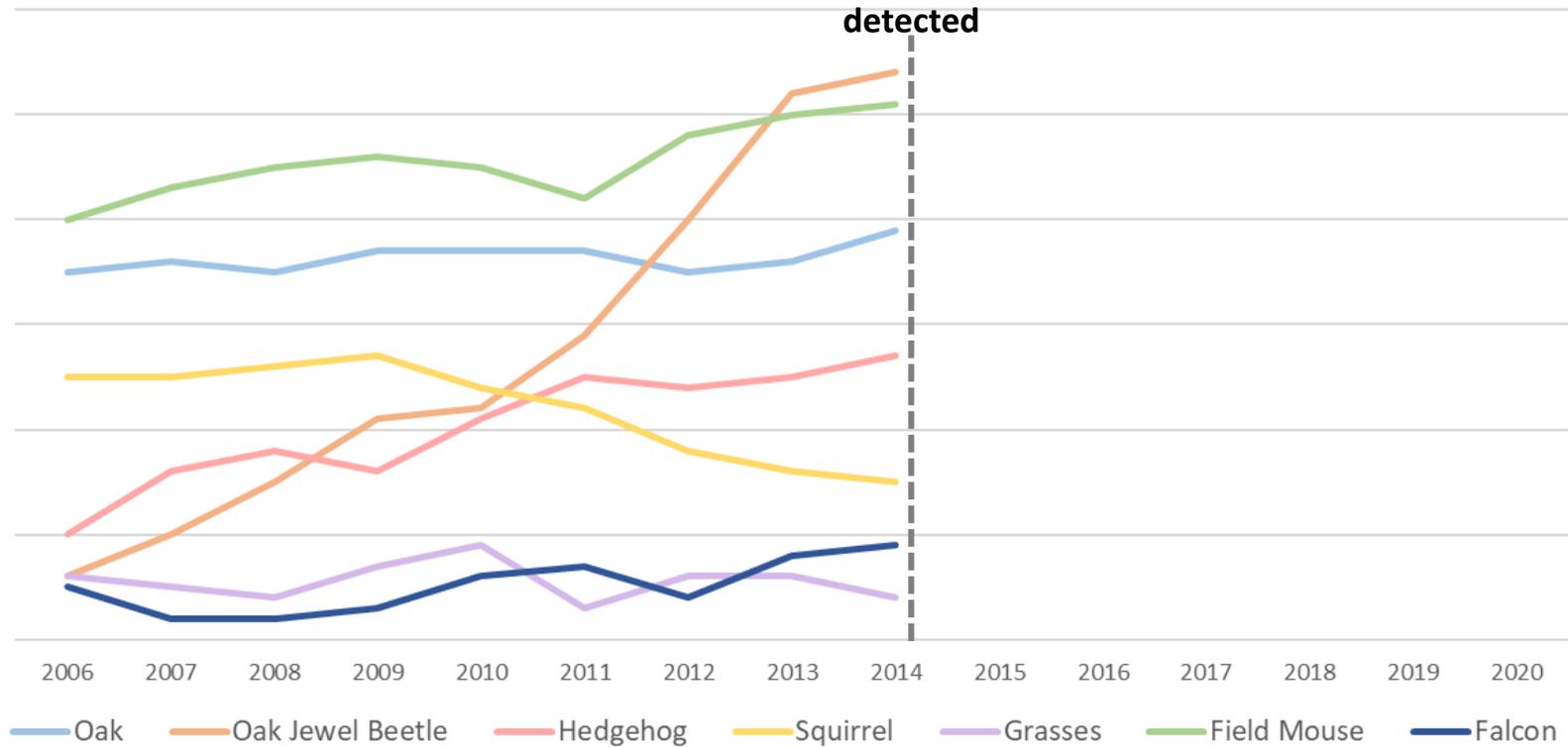
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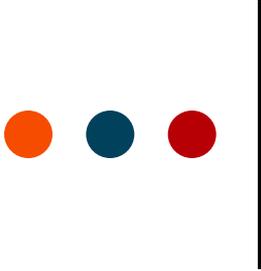
Species in a woodland after Acute Oak Decline

Acute Oak Decline
detected





Location of Parkhurst Forest



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Where is Parkhurst
Forest?

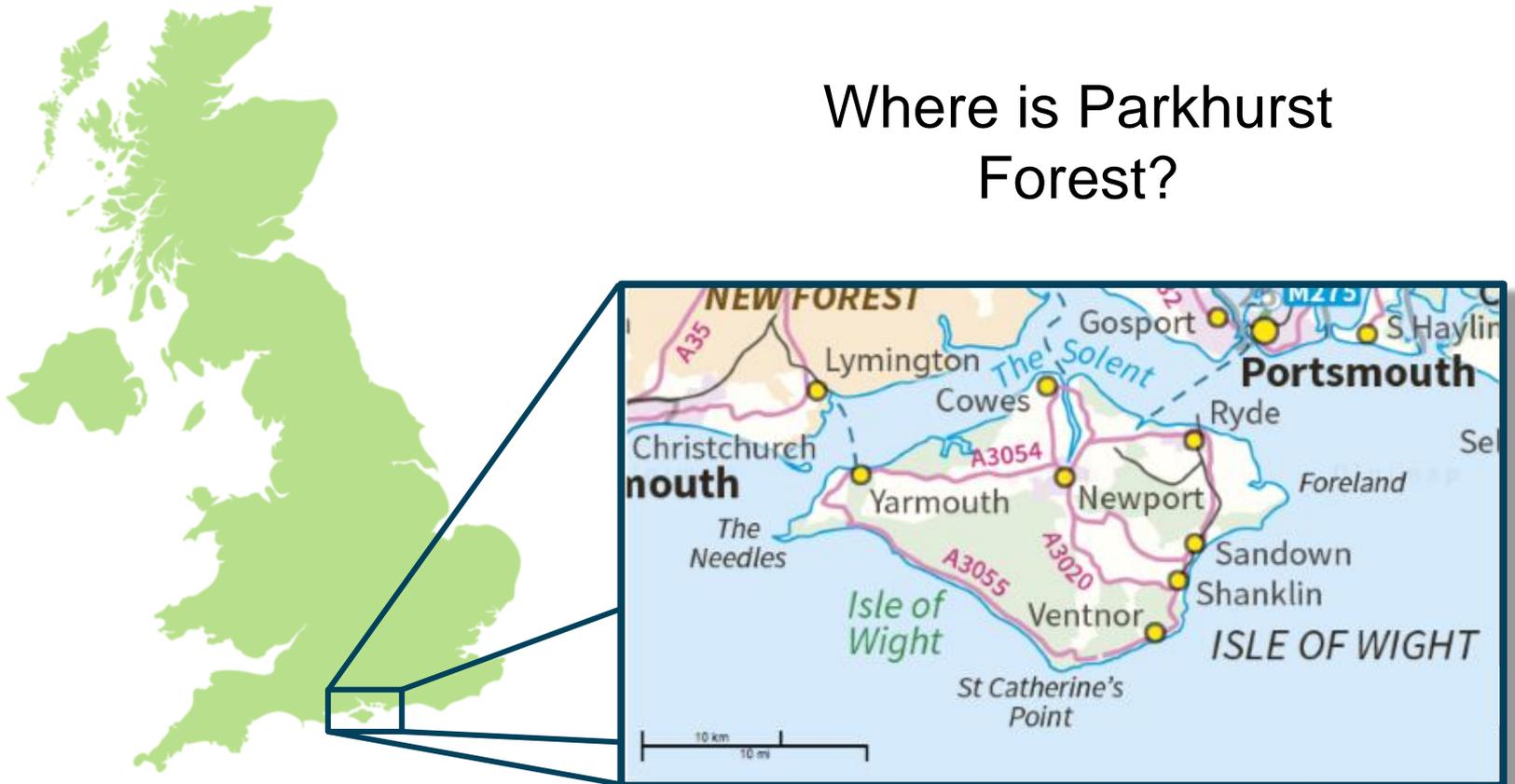
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Where is Parkhurst Forest?



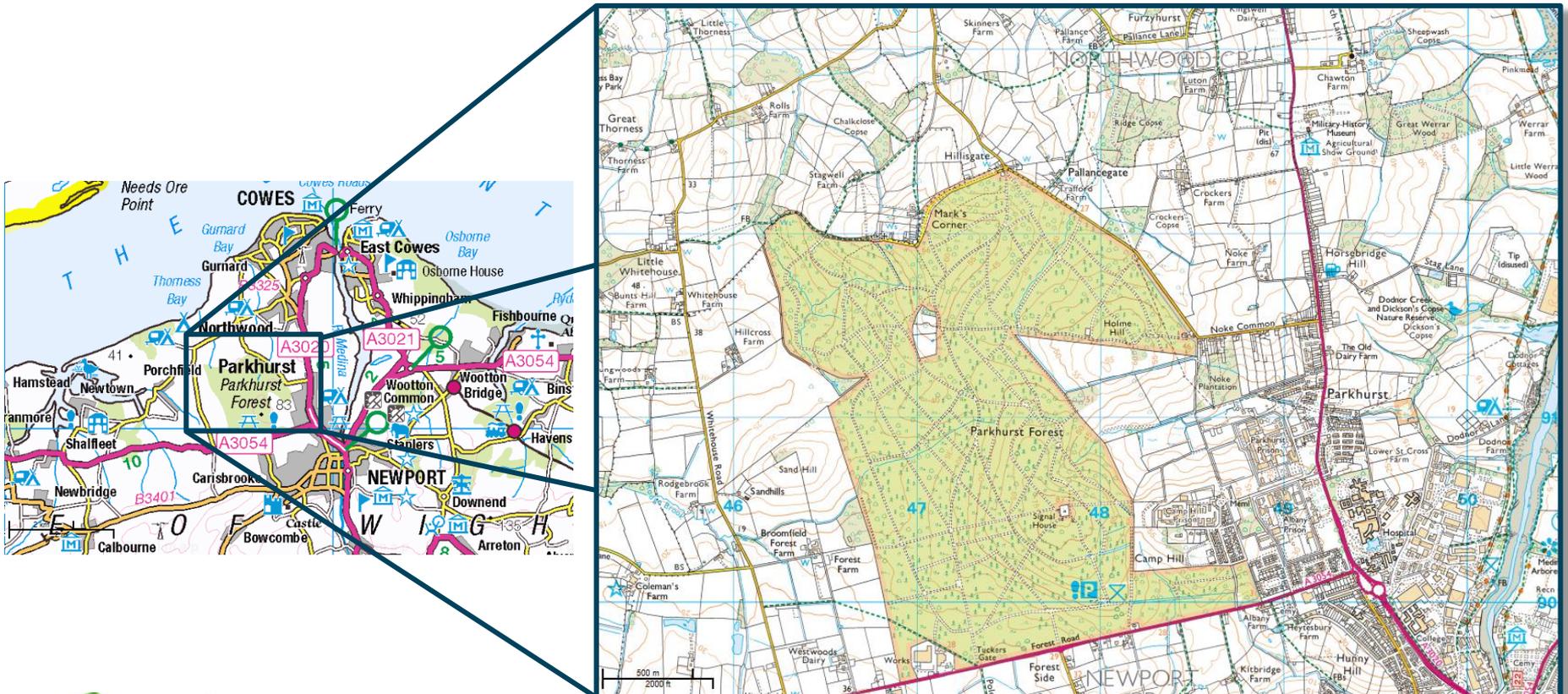
© 2017 Ordnance Survey

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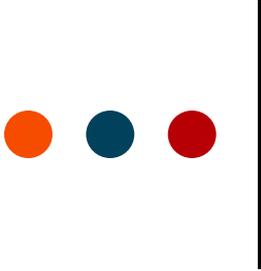
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Where is Parkhurst Forest?



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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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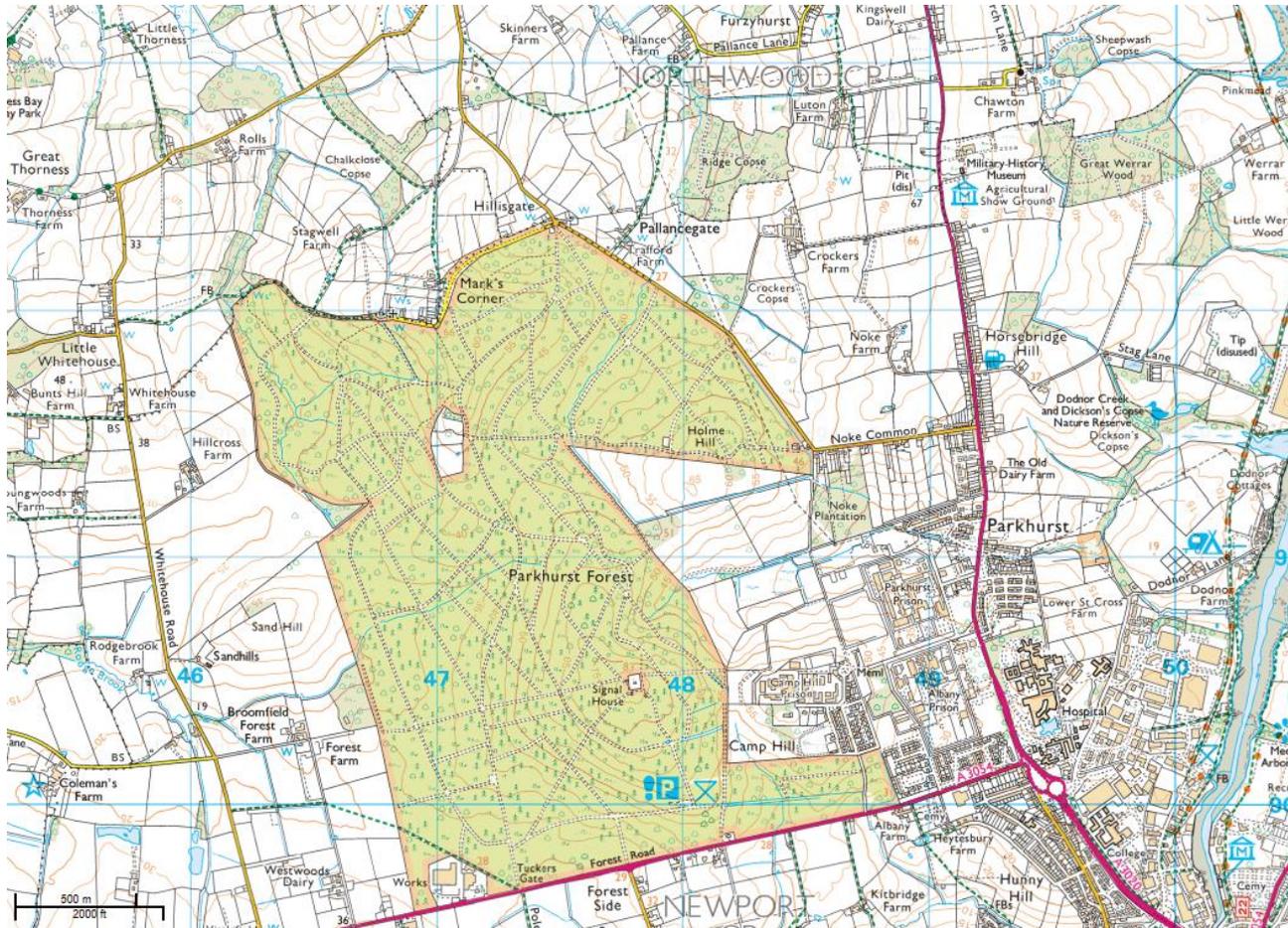
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Woodland Map Skills

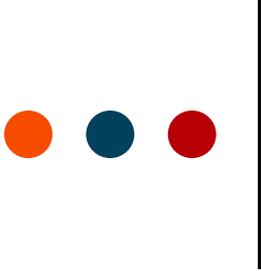
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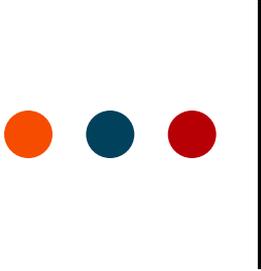


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1. Name the main road that runs along the southern most edge of Parkhurst Forest



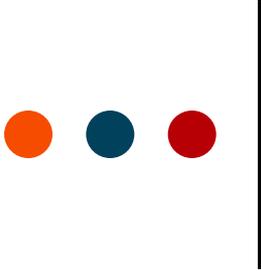
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1. Name the main road that runs along the southern most edge of Parkhurst Forest

A3054



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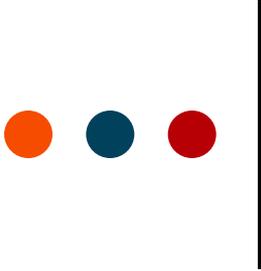
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1. Name the main road that runs along the southern most edge of Parkhurst Forest
2. Give the four-figure grid reference for the large clearing, found within Parkhurst Forest

A3054



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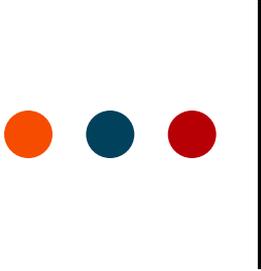
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1. Name the main road that runs along the southern most edge of Parkhurst Forest

A3054

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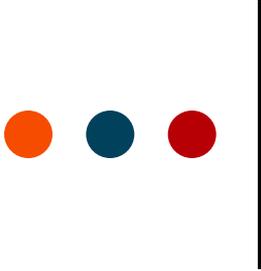
4791



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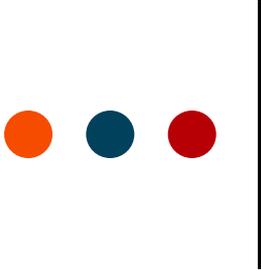
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3. Give the six-figure grid reference for Signal House, found within Parkhurst Forest



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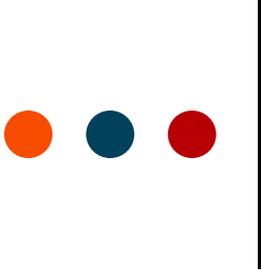
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3. Give the six-figure grid reference for Signal House, found within Parkhurst Forest

478905



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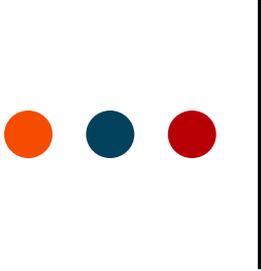
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3. Give the six-figure grid reference for Signal House, found within Parkhurst Forest

478905

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



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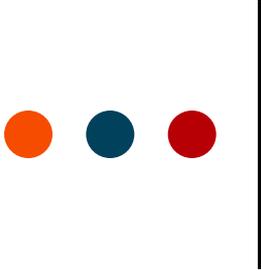
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3. Give the six-figure grid reference for Signal House, found within Parkhurst Forest

478905

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

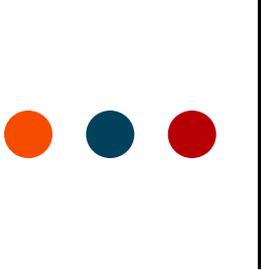
83m



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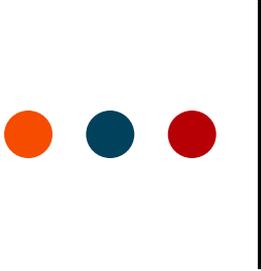
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5. What is the straight-line distance from the most northerly point in Parkhurst Forest to its most southerly point?



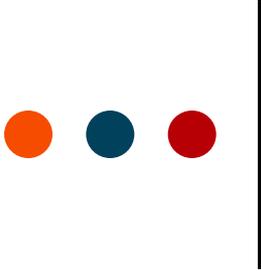
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5. What is the straight-line distance from the most northerly point in Parkhurst Forest to its most southerly point?

3.1km

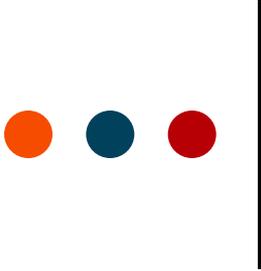


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5. What is the straight-line distance from the most northerly point in Parkhurst Forest to its most southerly point?

3.1km

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



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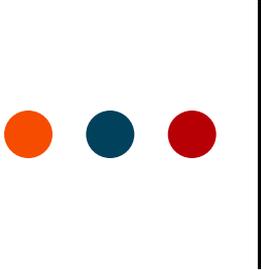
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5. What is the straight-line distance from the most northerly point in Parkhurst Forest to its most southerly point?

3.1km

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

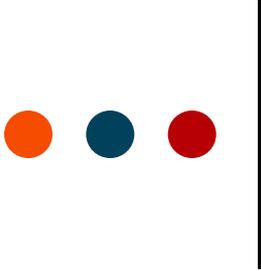
1.3km



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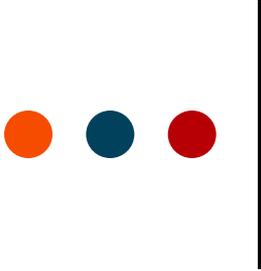


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7. What is found in grid square 4789 that may have an impact on the ecology in Parkhurst Forest?



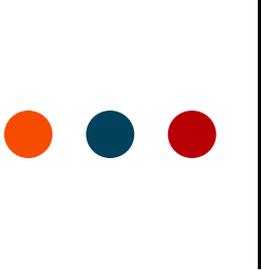
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7. What is found in grid square 4789 that may have an impact on the ecology in Parkhurst Forest?

Works / Industrial Site



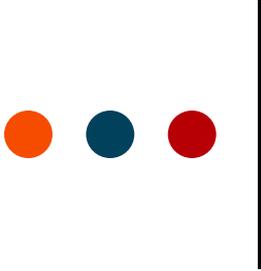
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7. What is found in grid square 4789 that may have an impact on the ecology in Parkhurst Forest?
8. If you were to walk from the top of Holme Hill to Camp Hill Prison, what bearing would you have taken?

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?

156°



Introduction to Parkhurst Forest

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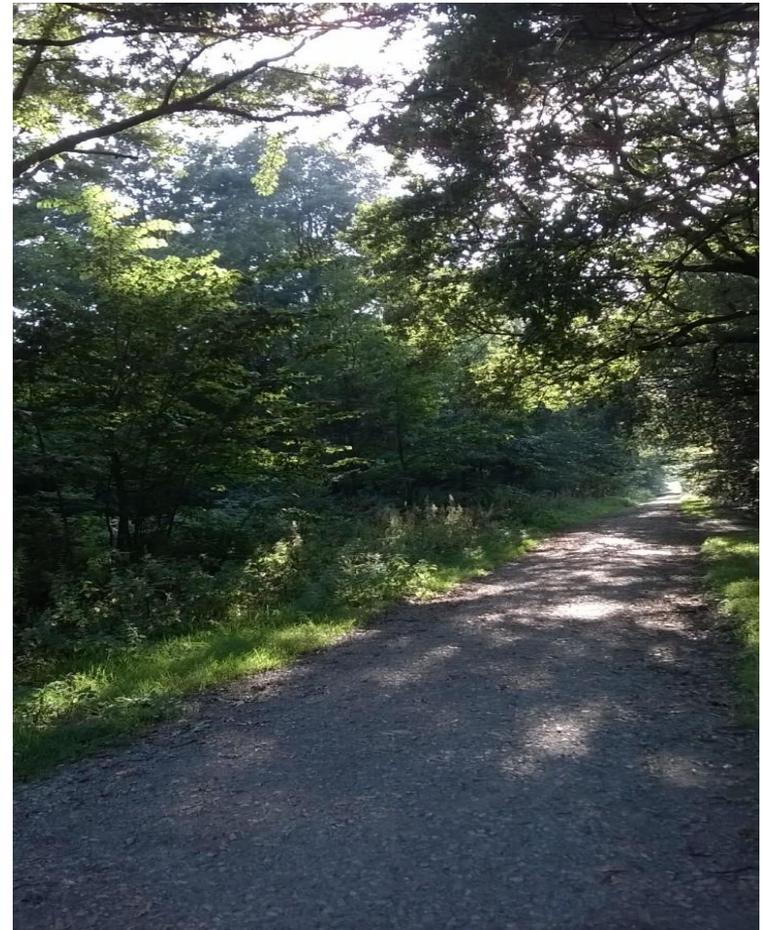
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An Introduction to Parkhurst Forest

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

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.



Source: Chloe Searl

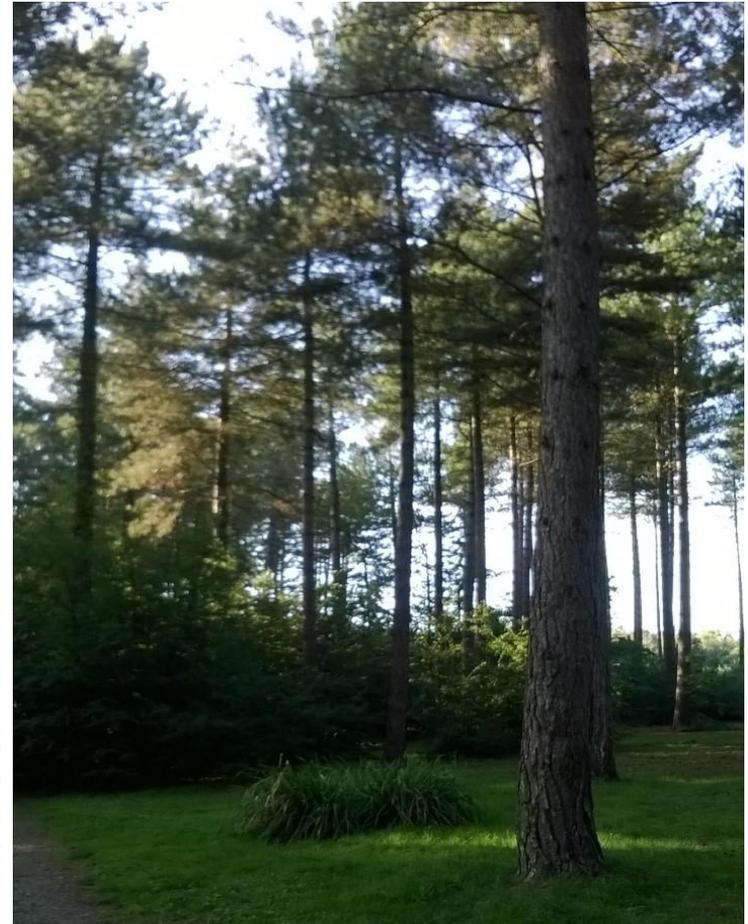
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The forest is an important part of the tourism portfolio of the Island, and is well used by islanders and visitors.

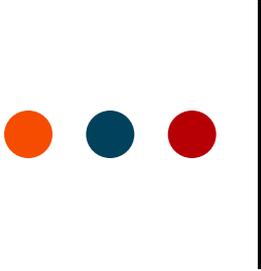
Vandalism, fires and fly-tipping do occur, but are relatively infrequent given the size and popularity of the forest.



Source: Chloe Searl



Woodland Species Data



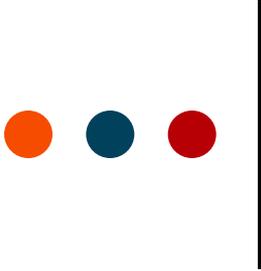
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Species found in a temperate woodland

Species abundance	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

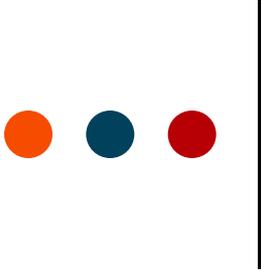


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Species found in a
temperate woodland

What type of data is
this?

Species abundance	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**

**What type of data is
this?**

**How might you
present this data?**

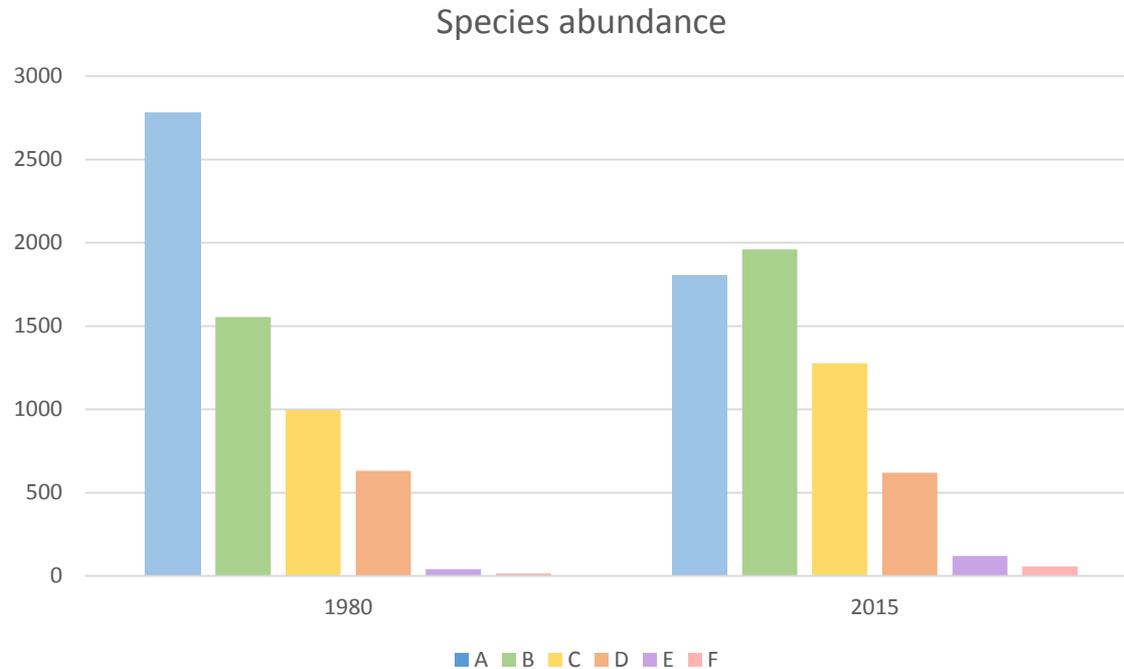
Species abundance	1980	2015
Tree A	2782	1803
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Tree D	631	620
Tree E	40	121
Tree F	16	57

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You could present the data in bar charts:

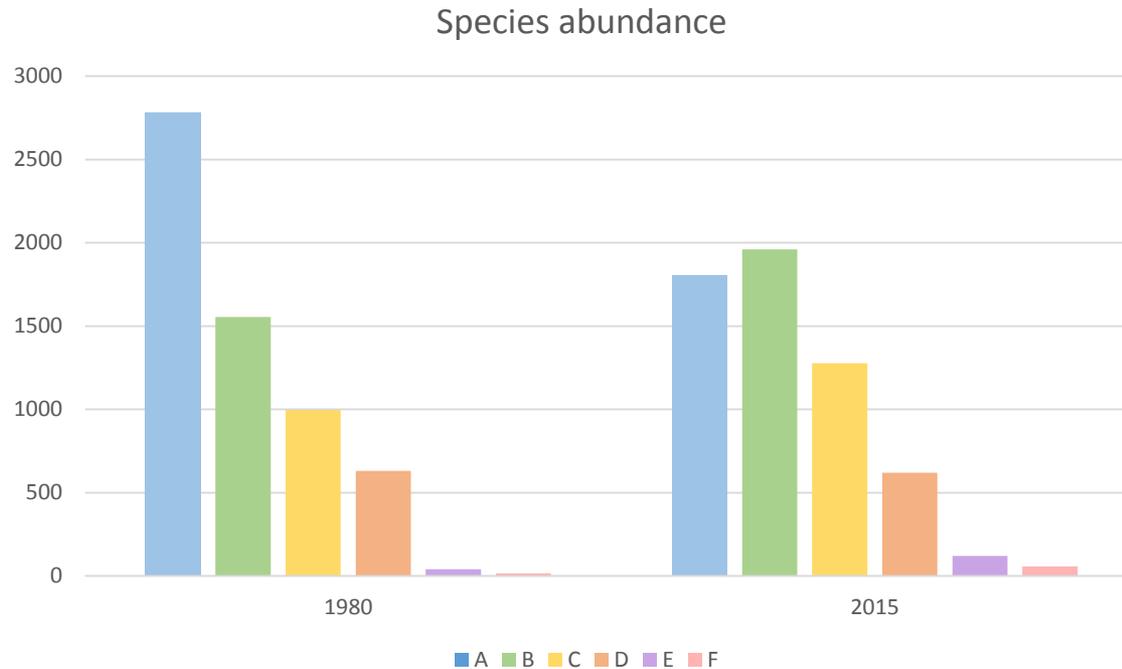


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You could present the data in bar charts:

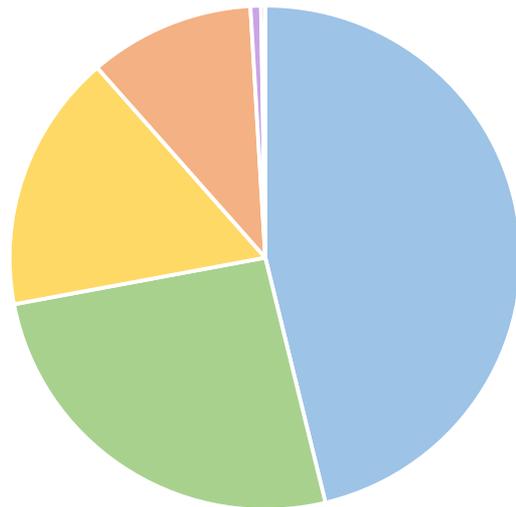


What problems
can you see with
this method?

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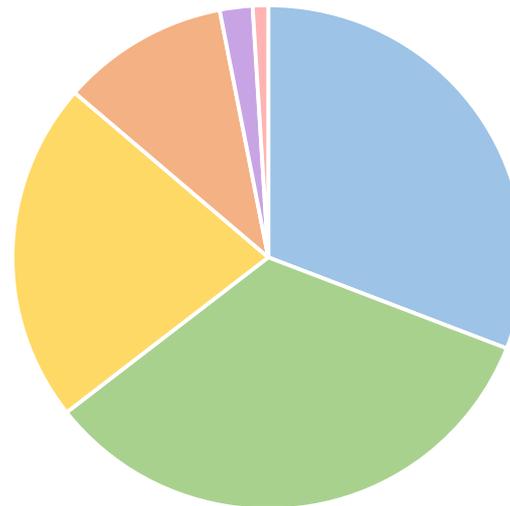
You could present the data in pie charts:

Species abundance in 1980



■ A ■ B ■ C ■ D ■ E ■ F

Species abundance in 2015

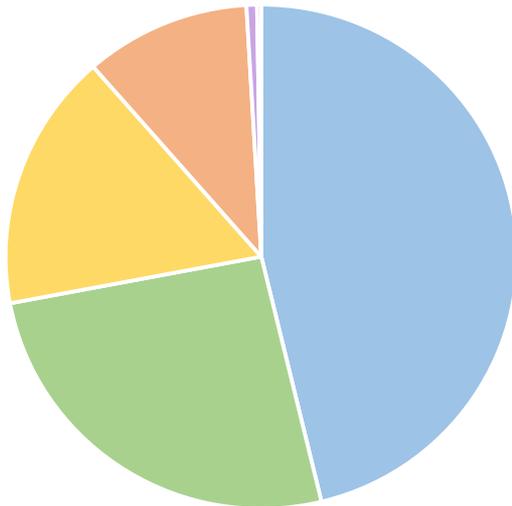


■ A ■ B ■ C ■ D ■ E ■ F

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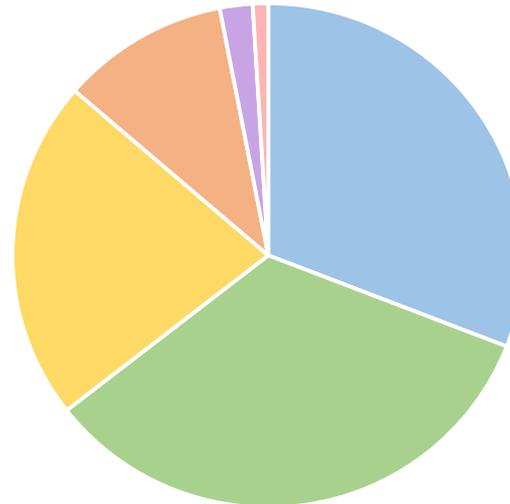
You could present the data in pie charts:

Species abundance in 1980



■ A ■ B ■ C ■ D ■ E ■ F

Species abundance in 2015



■ A ■ B ■ C ■ D ■ E ■ F

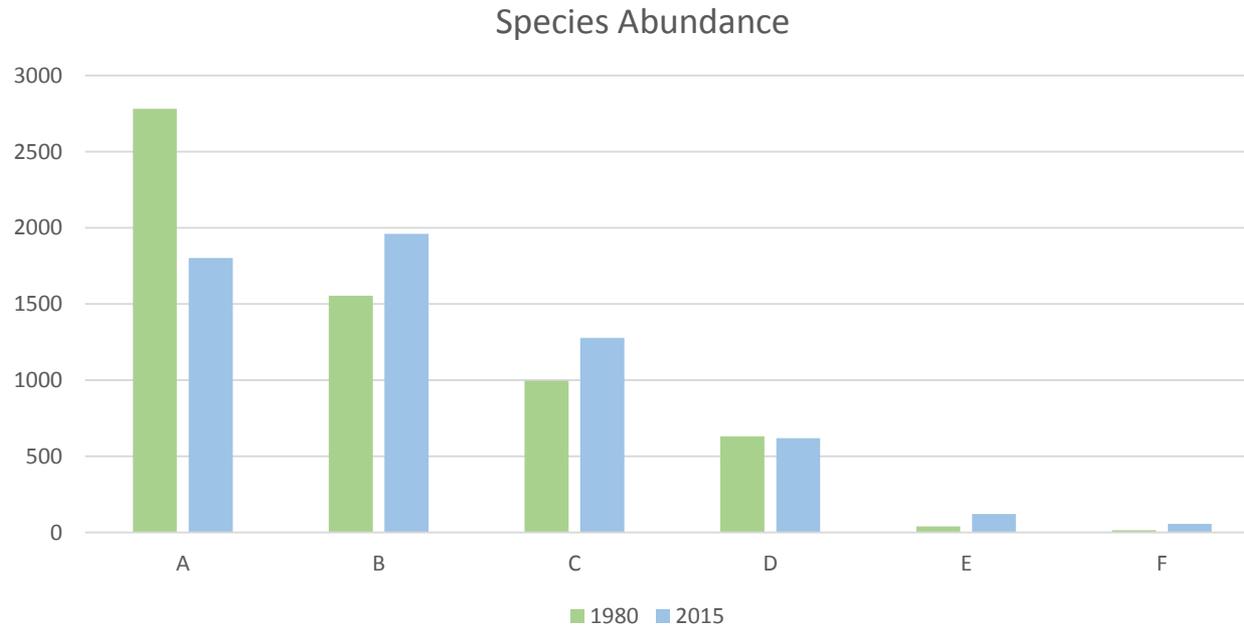
What problems
can you see with
this method?

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You could present the data in a comparative bar chart:

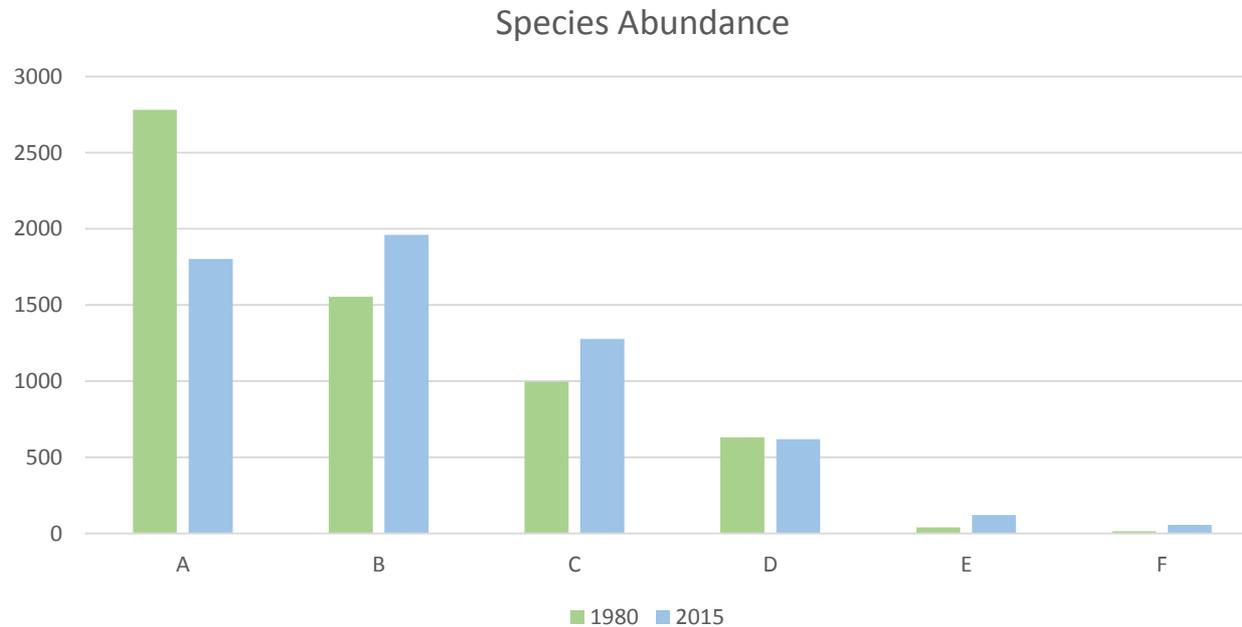


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You could present the data in a comparative bar chart:

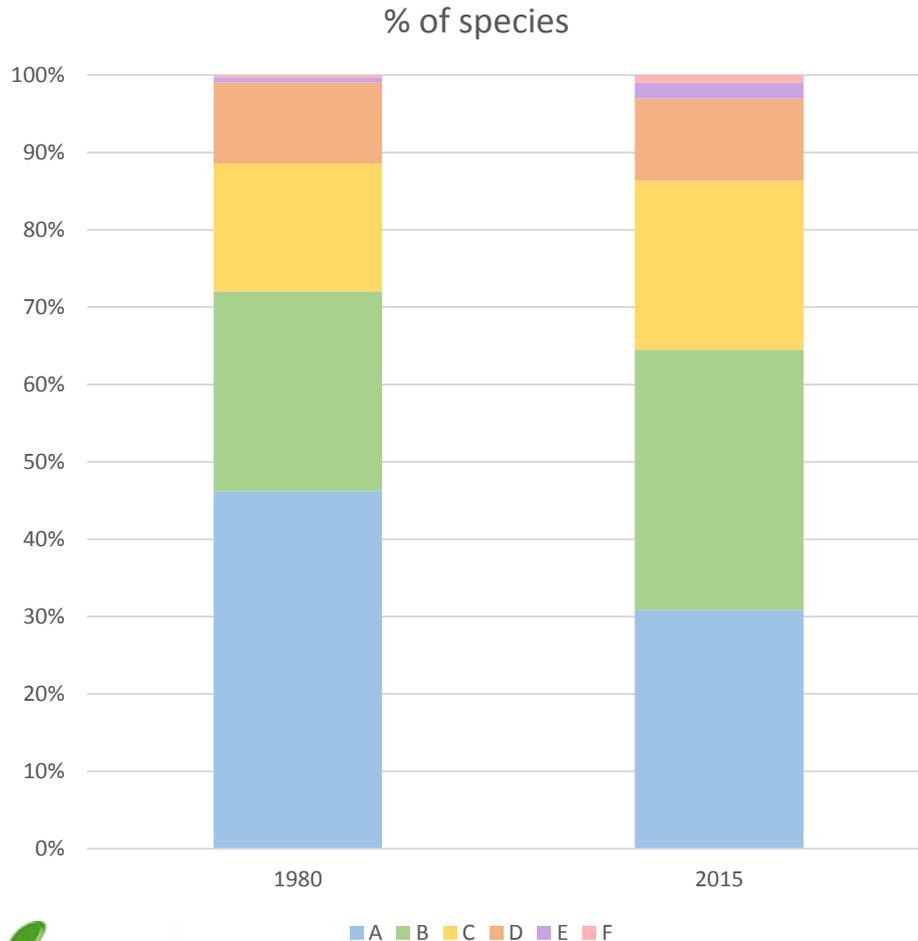


What problems
can you see with
this method?

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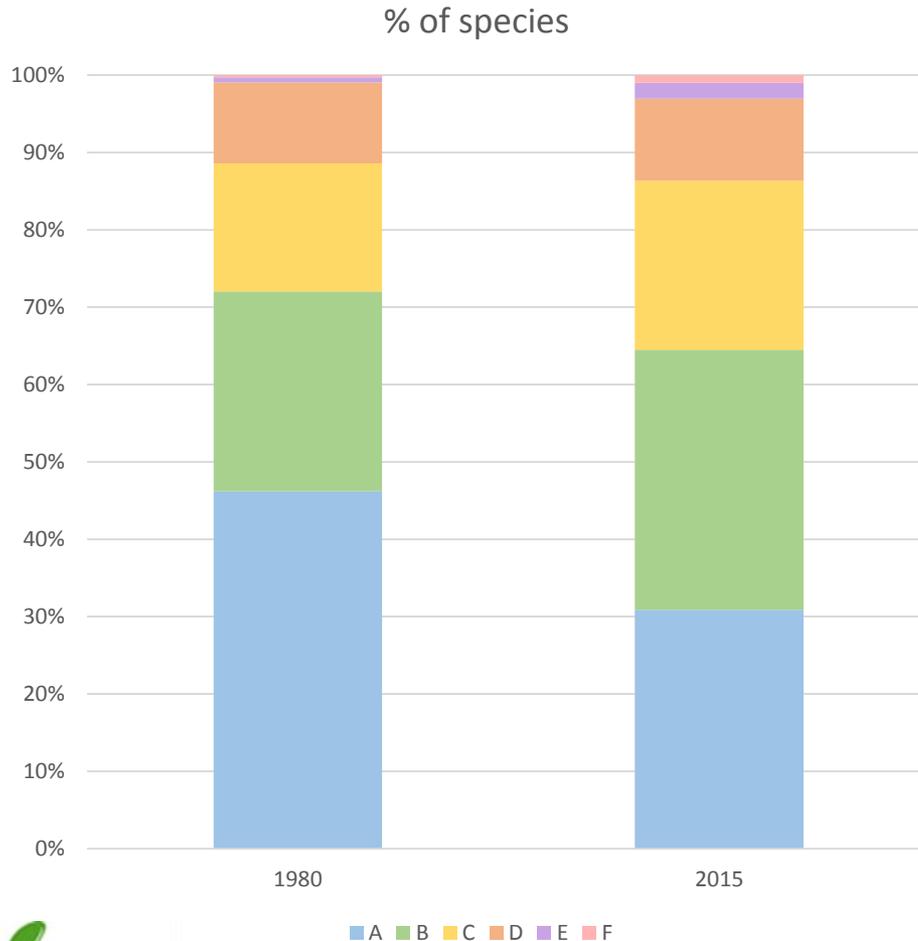


You could present the data
in a composite bar chart:

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You could present the data
in a composite bar chart:

What problems
can you see with
this method?



Acute Oak Decline

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Acute Oak Decline is the general term given to a bacterial infection that affects thousands of trees across Southern England.

The bacteria infects the area directly under the bark of the tree, causing cracks to appear and stem fluid to ooze out.



Oak 'weeping' through bacterial infection

Source: Ken-ichi Ueda CC BY-NC 2.0

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A rise in the numbers of Oak Jewel Beetles, that lay their eggs under the bark of the trees is thought to have increased the number of affected trees, possibly due to the beetle becoming a means for the bacteria to spread between trees.

Acute Oak Decline causes the tree to become starved of nutrients and once infected the tree sees a rapid decline, often resulting in death.

Defra 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