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Freepost RSCH-CKYJ-HYYC, OPAL, Centre for Environmental Policy, Imperial College London, London, SW7 2AZ

Activity 1: Lichens on trees

Date of survey _____

1. Who are you doing the Air Survey with today?

- Primary school Secondary school Friends or family College / university
 Youth group Adult volunteer group Other

2. Have you carried out a field survey before? yes no not sure

3. Could you identify a lichen before you did the survey? yes no not sure

4. Are you interested in air quality where you live? yes no not sure

A Site characteristics

5. Record the location of your site (postcode / OS grid reference / GPS reading).

Further help is available on the OPAL website if you are unsure of the exact location.

6. Which of these best describes your site? (please tick one?)

- Street Churchyard Garden Upland
 Playing field / park Farmland Wasteland Woodland edge

7. Can you see any of the following near to any of the trees that you are sampling? (please tick all that apply)

- Busy road Industry / factory Farmland / manure heap None of these
 Sewage treatment works Building site or quarry Playing field / park

B Tree characteristics

8. Record for each tree:

- the type (species) of tree, or answer 'unknown' if you are not sure (use the **Tree Identification Guide** to help you)
- the girth (circumference) of the trunk (in centimetres) at 1.3 metres above the ground

Tree 1

Species: _____

Trunk girth: _____ cm

Tree 2

Species: _____

Trunk girth: _____ cm

Tree 3

Species: _____

Trunk girth: _____ cm

Tree 4

Species: _____

Trunk girth: _____ cm

C Record lichens on the trunk

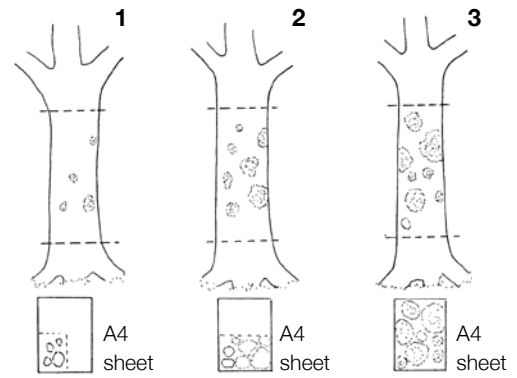
9. For each tree, record the total amount of each indicator lichen you see on the trunk in the table below. Use a 0-3 scale.

10. Did you find any lichens different from the indicator lichens? If so, count how many other types of lichen there are.

11. Look for green or orange algae on the trunk. Place a tick in the table if you find orange or green algae or no signs of algae.

Scoring amount of each indicator lichen

- 0 None (this is an important result)
- 1 Small amount overall (amounting to less than ¼ of an A4 sheet of paper in total)
- 2 Medium amount overall (amounting to between ¼ up to one A4 sheet in total)
- 3 Large amount overall (more than one A4 sheet in total)



	Amount of each indicator lichen on the trunk of each tree (0, 1, 2 or 3)				
	Example	Tree 1	Tree 2	Tree 3	Tree 4
Nitrogen-sensitive					
1. <i>Usnea</i>	0				
2. <i>Evernia</i>	0				
3. <i>Hypogymnia</i>	1				
Intermediate					
4. <i>Melanelixia</i>	1				
5. <i>Flavoparmelia</i>	2				
6. <i>Parmelia</i>	1				
Nitrogen-loving					
7. Leafy <i>Xanthoria</i>	2				
8. Cushion <i>Xanthoria</i>	1				
9. <i>Physcia</i>	3				
How many other types of lichen?	4				
Type(s) of algae tick (✓)	Green <input type="checkbox"/> Orange <input checked="" type="checkbox"/> None <input type="checkbox"/>	Green <input type="checkbox"/> Orange <input type="checkbox"/> None <input type="checkbox"/>	Green <input type="checkbox"/> Orange <input type="checkbox"/> None <input type="checkbox"/>	Green <input type="checkbox"/> Orange <input type="checkbox"/> None <input type="checkbox"/>	Green <input type="checkbox"/> Orange <input type="checkbox"/> None <input type="checkbox"/>

D Record lichens on twigs

12. Record the presence of indicator lichens with a tick (✓) in the table below. Enter zero (0) for each indicator species which was not present when you looked. Leave the columns blank for the trees where you could not reach the twigs safely.

13. If there are green or orange algae on the twigs enter a tick in the box.

	Indicator lichen on the twigs of each tree (3 if present, 0 if not present)				
	Example	Tree 1	Tree 2	Tree 3	Tree 4
Nitrogen-sensitive					
1. <i>Usnea</i>	0				
2. <i>Evernia</i>	0				
3. <i>Hypogymnia</i>	✓				
Intermediate					
4. <i>Melanelixia</i>	0				
5. <i>Flavoparmelia</i>	✓				
6. <i>Parmelia</i>	0				
Nitrogen-loving					
7. Leafy <i>Xanthoria</i>	✓				
8. Cushion <i>Xanthoria</i>	✓				
9. <i>Physcia</i>	0				
How many other types of lichen?					
Type(s) of algae tick (✓)	Green <input type="checkbox"/> Orange <input checked="" type="checkbox"/> None <input type="checkbox"/>	Green <input type="checkbox"/> Orange <input type="checkbox"/> None <input type="checkbox"/>	Green <input type="checkbox"/> Orange <input type="checkbox"/> None <input type="checkbox"/>	Green <input type="checkbox"/> Orange <input type="checkbox"/> None <input type="checkbox"/>	Green <input type="checkbox"/> Orange <input type="checkbox"/> None <input type="checkbox"/>

Activity 2: Tar Spot of Sycamore

A Site characteristics

1. Record the location of your site (postcode / OS grid reference / GPS reading).

Further help is available on the OPAL website if you are unsure of the exact location.

2. Which of these best describes your site? (please tick one)

- | | | | |
|---|-------------------------------------|------------------------------------|--|
| <input type="checkbox"/> Street | <input type="checkbox"/> Churchyard | <input type="checkbox"/> Garden | <input type="checkbox"/> Upland |
| <input type="checkbox"/> Playing field / park | <input type="checkbox"/> Farmland | <input type="checkbox"/> Wasteland | <input type="checkbox"/> Woodland edge |

3. Can you see any of the following near to any of the trees that you are sampling? (please tick all that apply)

- | | | | |
|---|--|---|--|
| <input type="checkbox"/> Busy road | <input type="checkbox"/> Industry / factory | <input type="checkbox"/> Farmland / manure heap | <input type="checkbox"/> None of these |
| <input type="checkbox"/> Sewage treatment works | <input type="checkbox"/> Building site or quarry | <input type="checkbox"/> Playing field / park | |

B Tree characteristics

4. Record for each Sycamore tree:

- the girth (circumference) of each trunk (in centimetres) at 1.3 metres above the ground
- the amount of fallen leaves lying under each tree (0 = no fallen leaves, 1 = a small amount of fallen leaves, 2 = lots of fallen leaves)

Tree 1

Trunk girth: _____ cm
Fallen leaves: _____

Tree 2

Trunk girth: _____ cm
Fallen leaves: _____

Tree 3

Trunk girth: _____ cm
Fallen leaves: _____

Tree 4

Trunk girth: _____ cm
Fallen leaves: _____

Record leaf information

5. Choose 10 leaves randomly from each tree. Record for each leaf:

- the number of tar spots (which are larger than 15mm wide), including any partial (or merged) spots (ignore any small marks and blemishes)
- the width of the leaf (in cm) at its widest point

Leaf number	Tree 1		Tree 2		Tree 3		Tree 4	
	Number of tar spots	Leaf width (cm)	Number of tar spots	Leaf width (cm)	Number of tar spots	Leaf width (cm)	Number of tar spots	Leaf width (cm)
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

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