

An exploration of crotal: lichens through the medium of Gaelic

Cristie Moore, Pupil Support Assistant at Breadalbane Academy, and the children of Primary 5 and 6 share how the John Muir Award has helped Gaelic learners engage with lichens and citizen science...

With a sky full of rain clouds our intrepid group of budding lichenologists set out for the Birks of Aberfeldy accompanied by local lichenologist Dr Oliver Moore. Our aim was to complete an OPAL (Open Air Laboratory) Air Survey as part of our John Muir Discovery Award and also think about renaming some of the lichens. Gaelic names for most lichens are no longer known and they are referred to as crotal. This may look familiar as the term crottal is used in English for a number of lichen species from the genus *Parmelia*.

The group consisted of Primary 5 and 6 pupils from the Gaelic Medium Education class at Breadalbane Academy in Aberfeldy. These children are immersed in the language and many of their subjects are taught through the medium of Gaelic until Primary 3 when English reading and writing are introduced. Learning through the medium of Gaelic helps pupils when tackling other languages and gives them the opportunity to learn about other cultures. The Gaelic language is an important part of Scotland's heritage and anyone looking on a map is bound to find evidence of it in the place names. These Gaelic place names may sometimes refer to a feature such as a hill, a colour or the name of a tree or animal which gives us an insight into past use. For example, Meall Dubh (the black round hill) or Beinn Eagagach (the jagged or notched mountain) are found locally in Perthshire.

The John Muir Award is the main engagement initiative of the John Muir Trust where participants are encouraged to connect with, enjoy and care for wild places. The John Muir Trust is a conservation charity dedicated to protecting and enhancing wild places. There are three levels to the John Muir Award and we have been working towards the Discovery Award. Our initial activity was focused on the Birks of Aberfeldy, which is an area of mature mixed woodland with a steep sided gorge and many waterfalls. Birks is Scots for birch trees so you can imagine how numerous they are. The area was made famous by Robert Burns with his poem 'The Birks o' Aberfeldie'. To get prepared for visiting the Birks we had pored over maps, noting the close contour lines and the blocks of trees. Previously, we had taken the whole class on an amazing journey around the Birks, enjoying the signs of other life such as the holes in the banks, our first primroses of the year, fungus on fallen logs and even collected whatever litter we could find on the way. However, our purpose today was all about collecting scientific data in order to contribute to a larger project. OPAL is an initiative that encourages citizen science and has many different surveys for people to take part in. We decided to tackle the Air Survey using lichens. All the materials needed to take part can be downloaded and printed from the OPAL website (www.opalexplorenature.org).

More recently Scottish Natural Heritage (SNH) and Bòrd na Gàidhlig with Gaelic Educator Roddy Maclean have been collating all the Gaelic names for some groups of organisms such as ferns and dragonflies, the aim being to help preserve them and encourage their use. With so few Gaelic names still in existence for the different species of lichens we wanted to take on the challenge of renaming a few. 'We have Gaelic names recorded for some commoner genera or species of lichen, such as lungwort, dog-lichen and old man's beard (feusag nan gobhar or 'goats' beard' in Gaelic)' says Roddy, 'but, to encourage more use of our language in connection with nature, we need to expand its vocabulary in the modern age.'

On the walk from school to the Birks we hunted out lichens and Dr Moore explained what to look for to help with identification of the different groups. The children were fascinated by not being able to get a species of *Lepraria* to absorb water and marvelled as a specimen came out dry after being immersed in a puddle.



Once on site we discussed the method and were given a training session in how to spot the nine lichens mentioned in the survey. The first part of the survey asks you to log characteristics of the site such as the post code, is it near a building site etc. Then the survey began in earnest and we broke into two teams. Each team identified the tree they were working on and measured the circumference at a height of 1.3m above ground level. Lucky for us Beth was exactly 1.3m tall and was happy to move between

trees as a human tape measure. Using a scale on the recording sheet we then gave results on the quantities of each of the nine lichens both on the tree trunk and on the twigs. As you can see from our lichen moustaches the damp weather didn't put us off.



A week later, we entered our data onto the OPAL website and then began looking at our lichen specimens more closely, and from a Gaelic perspective, in our make shift laboratory. A quick search using the online dictionary at learnghaelic.net showed that there are a few names for some of the more showy or common lichens such as grìoman (*Lobaria pulmonaria*) and lus-gionach (*Peltigera canina*) [greedy plant] but many of the



names as with other species groups seem to have been lost over time. The Gaelic language can be really descriptive particularly when referring to the natural environment. With this in mind we took time to examine and draw the lichens and look at their English names before giving them Gaelic ones. This generated enthusiastic discussion. Elspeth thought the *Evernia prunastri* looked like many hands and was subsequently named tòrr lamhan to reflect this. The leafy *Xanthoria parietina* became tonnan peant because it looks like spilled paint. We also made *Xanthoria* tartlets to resemble the

reproductive structures and to keep our energy up as we worked. Fortunately, no one thought to add anything to resemble lichenicolous fungal parasites of the apothecia to our tarts.

The children then spent time with the Gaelic High School teacher at Breadalbane Academy, Mr MacSween. Mr MacSween is a native Gaelic speaker originally from the Island of Scalpay who was able to help the children with their vernacular. Table 1 demonstrates the descriptive nature of the Gaelic language.

Latin name	English name	Childrens suggestions of Gaelic names and descriptions	English translations	Actual Gaelic name	English translation
<i>Usnea</i>	Old man's beard	Feusag bodaich Glas-uaine air fad Geugan mar snàthlan	Old man's beard Grey-green all round Branches thread like	Feusag nan Gobhar (<i>Usnea barbarata</i>)	Grey beard
<i>Evernia</i>	Oak moss	Còinneach-mhara Glas-uaine gu h-àrd Maothan còmhnard iallach	Sea moss Grey-green on top Lobes flattened, strap like	Crotal Daraich	Oak lichen
<i>Melanelixia</i>		Duilleagan marbh Maothan dorcha donn fuaighte ri rùsg Nas soilleire anns na h-àitean far an deach an snathadh	Dead leaves Dull brown lobes, closely attached to bark Paler areas show where surface is rubbed		
<i>Flavoparmelia</i>	Common greenshield lichen	Pàipear rocach Maothan leathann ubhal-uaine Uachdar preasach air a bheil spotan pùdarach a' fàs	Wrinkled paper Broad applegreen lobes Wrinkled surface on which powdery surface spots may develop		

<i>Parmelia</i>		Maothan glas gu h-àrd Dorcha donn gu h-ìosal Maothan tana fuaghte ris an rùsg Patran le loighnichean geal air uachdar	Lobes grey on top Dark brown below Lobes thin, loosely attached to the bark Pattern of white lines on the surface	Crotal-sgiathach (<i>Parmelia sulcata</i>) Crotal-sgiathach saillteach (<i>Parmelia saxatilis</i>)	Shield lichen Salted shield lichen
Leafy <i>Xanthoria</i>	Common orange lichen; yellow scale	Tonnan peant Maothan buidhe/orains Maothan leathan sgaoilte Le beagan spotan orains	Waves of paint Lobes yellow/orange to greenish yellow Lobes broad, spreading A few orange spots present	rùsg-buidhe nan creag (<i>Xanthoria parietina</i>)	Yellow scale of the rock
Cushion <i>Xanthoria</i>		Trompaidean buidhe Maothan buidhe agus uaine glas Maothan beaga agus dosrach Le mòran spotan buidhe	Yellow trumpets Lobes yellow to green-grey Lobes small and clustered Many orange spots present		
<i>Physcia</i>		Leatas glas-uaine Maothan glas gu h-àrd, geal gu h-ìosal Cinn nam maothan an àird a' fàs pùdarach Bàrr roinneagan dubh air oirean nam maothan	Grey-green lettuce Lobes grey on top, white underneath Lobe ends raised up becoming powdery Black-tipped whiskers on the lobe edges		

*This seems unusual as black lichen could refer to any number of black crustose lichens and the English name of heather rags seems much more appropriate.

We also added in descriptive sentences so that we could create an identification guide.

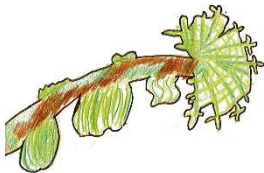
Lumpy Hypogymnia Cnapach

- Tha e cnapach is uaine
- Tha e a' fàs air craobhan mòra
- Chò toil leis fruailleadh.



Le Eòghann

USnea fairsy cràite



1. Tha e uaine
2. Tha e sligeach
3. Tha e cnapach

le Beth

tòrr many
lànhan hands

Evernia



1. Tha uaine osachionn agus tha geal gu h-ìosal
2. Tha e mar tòrr lànhan.
3. Tha e a' fairsy dainn tioram agus tha e ri dìosgal
4. Tha e cruaidh.

Le Eispeth

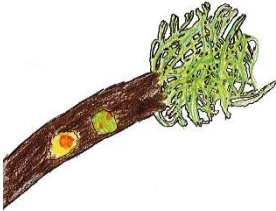
usnea! Old Man's beard

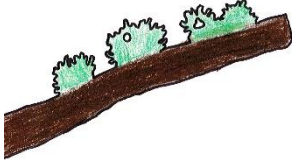
- Tha e uaine
 - Tha e sligeach.
 - Tha e cnapach
 - Tha e math air tha e ag innse gu bheil an oidheadh glan.
- Tha tòrr phrionnsan beaga air.

Olive

Seo Fairsy Bodach



Feusag Bodaich	Ushoa
	
<ul style="list-style-type: none"> • Tha e uaine. • Tha e mar falt • Tha e rud beag glas. • Tha e mar feusag. 	
le Annie	

Còinneach - mhara	Evernia
	
<ul style="list-style-type: none"> • Tha e coimhead mar coireal uaine • Tha e bachlagach nuair a tha e tioram. • Tha e uaine air an taomh a mhuigh ach geal air an taomh a stigh. 	
le Skye	

The John Muir Award tied our activities together. Getting involved in citizen science, baking, language and research, as well as getting creative and having fun helped us to meet the four challenges of the Award. It also fostered an interest in lichens among the participants and an appreciation of their beauty and importance. Perhaps one day these children may go on to become the next generation of lichenologists.

If you would like to find out more about the John Muir Trust please go to www.johnmuirtrust.org and to get involved with the John Muir Award visit www.johnmuiraward.org. Participants involved in the John Muir Award are highly diverse, from families working towards a Family Discovery Award to school groups and adult volunteer groups and individuals. The John Muir Award receives funding support from Scottish Natural Heritage.

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