



## Barnacle Goose (*Branta leucopsis*)

How could barnacle geese be understood by people who never saw their eggs or goslings? Gerald of Wales thought they were bred from the juices of wood in seawater, specifically in 1188 he wrote "... they are born like pieces of gum on logs of timber washed by waves..." He was in fact describing goose barnacles, crustaceans of Thoracica, which we are now very certain are related to lobsters and crabs not birds. Although their markings and coloration bear a fleeting resemblance to barnacle geese.

Nearly a millennium later adult barnacle geese continue to arrive in Britain and Ireland in October and stay until March. We now understand that they come here for a mild winter, and return to Arctic islands to hatch and rear young who launch themselves into growing up with death defying cliff jumps. Barnacle geese nest on cliffs so that their eggs are inaccessible to arctic foxes. When the goslings hatch,

despite having only fluffy down and no flight feathers, they must descend from their nest to grass where they can feed. So, they plummet from nest to ground. Despite falls that can be from more than 100 metres about 90% of hatched goslings survive their descent, even bouncing off rounded rocks, somewhat protected by their down and the lightness of their body. While barnacle geese can't help their goslings journeying down from the nest, they try to defend them from arctic foxes that await them on the ground. When autumn arrives in the Arctic around half of goslings hatched will have survived into young adulthood and migrate to overwinter in Britain and Ireland.

For barnacle geese arriving in our milder climate looking for plants to eat, lush agricultural land is irresistible, and for decades this caused decline in their populations as farmers are allowed to shoot them, under licence, due to their impact

### WHILE YOU'RE AT THE WATER

#### LEAF PEEPING

Shortening day length and colder air temperatures are notable to swimmers for cooling water, and also mechanisms that drive autumn's flourish of colour as deciduous leaves surrender their green to reveal yellow, amber, and red. In autumn production of chlorophyll, which we see as green, wanes and chlorophyll present in leaves decomposes without being replaced. In the absence of masking green other compounds in leaves are visible to us. Carotenoids and flavonoids, which are seen as yellow, orange and red, decompose slower than chlorophyll. An additional edge of colour shows when sugar levels in leaves increase and there is sunshine causing anthocyanins to be produced, they are visible as shades of magenta, purple and vivid red. Swims that include autumn leafy views don't have to be within forests, though South Devon's coastal oak forests and Perthshire's beech forest along rivers are beautiful. Seashore bays on Guernsey and Yorkshire waterfall pools are edged with tawny bracken that can brighten dull days. Look out for your local swims that are enhanced by autumn's leafy glow.

on crop production. Nature Scotland has been running population counts of barnacle geese and partial compensation schemes for crop damage on Islay and in Solway, key areas for their overwintering. Precipitated by the impact of avian flu on barnacle geese populations, calls for non-lethal means of resolving this conflict between wildlife and humans have increased.

#### Where to see them

- Inishkea Islands, Co Mayo
- Islay, Inner Hebrides
- Cleethorpes beach (for swimmers) adjacent Cleethorpes boating lake enjoyed by barnacle geese, Lincolnshire
- Derwent Water, Cumbria

# Windermere



Photo: Jonathan Cowie

## Windermere at sunset

A summer culminating in toxic blue-green algae in the Lake District's most famous lake featured in national headlines. Feted in literature by residents such as Beatrix Potter and Wordsworth, who advocated on its behalf, the Lake District gave rise to the National Trust and stoked ardour for conservation. Conversely, the Lake District's celebrated vistas may also accurately be referred to as a sheep-wrecked landscape. While sewage and particularly phosphate pollution that fuelled algal growth has been prominent in news coverage, it's just the most recent assault on the natural environment in the Lake District. Even without toxic algae clouding the waters of Windermere it is a landscape we have already corrupted. While upper slopes of its mountains are above the treeline, its lower slopes and valleys would be more forested than stark if its land was not dominated by grazing on pasture.

Wordsworth's poems stoked enthusiasm

for visiting the Lake District and catalysed tourism, and he also bemoaned proposed railways as a threat to the landscape because it would be easier for people to visit. He simultaneously encouraged tourism and railed against it. Direct release of sewage into Windermere is a driver of blue green algae growth by providing phosphate as nutritional fuel, exacerbated by warmer temperatures speeding up its growth. Failure to treat sewage before releasing waste water by the utility company and unmonitored private septic tanks are tools that are failing to cope with the intensity of visitor numbers.

Addressing infrastructure deficits and increasing capacity of the sewage company to treat waste water and better monitoring of septic tanks could reduce the occurrence and extent of blue green algae growth. If Windermere's water can be restored to clarity it is one aspect of healing a landscape that bears deep marks of human presence.

## The Rivers Trust: Reasons to be cheerful

It's been quite a month at The Rivers Trust. The serious issues of water scarcity and river pollution have assembled together like a twisted version of the Marvel Cinematic Universe. The prolonged dry weather has put intense pressure on rivers, as low levels reduce the amount of oxygen in the water and increase the concentration of dangerous pollutants, leaving wildlife struggling to cope.

Then, when the rain finally did arrive, it was a matter of hours before widespread sewage discharges were reported across England's beaches. We can safely assume this is happening in rivers too, we just don't have the live monitoring in place to prove it.

It's easy to see all of this negative news and feel completely overwhelmed. How can you possibly find a silver lining?

Just a few short years ago, river health was a fringe issue. The general public was a lot more aware of things like air pollution, deforestation, or ocean plastics than about rivers. Now, rivers are headline news. In just the past few weeks, we've spoken to media not just across the UK but around the world about the stresses and strains facing our precious waterways.

This explosion of attention may seem sudden, but we think it is the result of years of hard work from campaigners and organisations across the whole environment sector, including our allies from the outdoor swimming community.

The extensive coverage of the plight of our rivers is a sign that change is not just necessary; it is desperately wanted. And if we keep making our voices heard, we give ourselves the best possible chance of making change a reality.