



Photos by **Laurie Campbell**

PARK LIFE

Inner-city Glasgow is the unlikely home of a group of all-black water voles that behave more like moles. **Anna Levin** goes in search of an urban enigma.

Black 'Ratty' appears out of a burrow in a park in Glasgow. Non-aquatic water voles were discovered in the Greater Easterhouse area of the Scottish city in 2008, occupying urban grasslands in residential areas and along road verges.





Right: this site in Glasgow has been earmarked for development. Ecologists have been called in to move the voles to a new site. Below right: in the suburb of Garthamlock, north of the River Clyde, water vole holes have been exposed. Inset left: markers are used to indicate where a burrow is located.



The last time I went looking for water voles with wildlife photographer Laurie Campbell, we were high on a moor in Scotland's Monadhliath Mountains. The silence was so intense I could hear the sound of my pen as I scribbled notes. Crouching beside a ditch, Laurie pointed out the neat 'lawns' at the water's edge where the grass had been nibbled short by water voles. I heard a sudden, soft 'plop', saw a twitch in the tussocky grass... but nothing more.

Today we're on the edge of the M8 motorway, which slices through the centre of Glasgow, relentless traffic thundering by. We're just below a retail park and along the steep earth slope, among discarded coffee-cup lids and sandwich wrappers, are small, round holes: water vole burrows. We're here with zoologist Robyn Stewart, researcher for the Glasgow Water Vole Project, who is giving us a tour of her unlikely beat.

LOOKING OUT OF PLACE

It just so happens that the East End of Glasgow, including a few kilometres of motorway corridor, city parks and housing estates, hosts the highest density of water voles anywhere in the UK. You could hardly conceive of a less promising place to find a species that's not only one of our fastest declining mammals, but also popularly associated with idyllic, languid backwaters.

We continue to a nearby park, and

Above: Glasgow's 'fossorial' voles have glossy black or brown fur, rounded ears, a blunt muzzle and small eyes like their 'riparian' (watery water vole) cousins. Below: the mole-like rodents pop up from a complex system of burrows.

settle, binoculars poised, beside a gentle slope. Within a few minutes a black face appears at a burrow entrance. My first water vole sighting comes with a start of familiarity, nostalgia even – why, it's Ratty! Then another one, chocolate-brown this time, scuttles out – quivering, dashing around like a small guinea pig in a hurry – and disappears again.

As I tune in, I see more and more burrows, and water voles popping up like jack-in-the-boxes. Right here, in an otherwise normal inner-city park, against a backdrop of grey tower blocks, with kids cycling, mothers pushing buggies and dog walkers strolling by. It feels incongruous, verging on surreal. For a start, there's no water! Surely 'Ratty' should be messing about on a riverbank? Every field guide worth its salt tells us to look for water voles beside slow-moving rivers, canals, streams or marshy pools.

ADAPTABLE RODENTS

In the UK *Arvicola amphibius* is normally 'riparian' – living beside water – but across the species' broad range from Spain to Siberia many of its populations are 'fossorial' – non-aquatic, living in grassland and burrowing like moles. Sometimes these fossorial water voles occur in large numbers and are considered a pest of farmland and gardens. So our 'watery water voles' represent just one lifestyle option for these adaptable rodents. What is unusual in Glasgow is the voles' high population density and their proximity to urban life.

Robyn leads us closer, carefully sticking to a path around the edge of the slope, which is honeycombed with burrows. It reminds me of walking near puffin colonies on the Isle of May or Farne Islands, where straying from the path could risk collapsing a burrow underfoot.

Robyn tells us that when Glasgow's water voles were first discovered in grassland in 2008 – one accidentally caught in a trap set for rats – the initial response was a blanket ban on cutting of long grass. But in fact, properly managing the habitat of fossorial water voles means actively maintaining open grassy areas. Leave the grassland too long and it will become scrub and then woodland.

The team are currently trialling a new machine with exceptionally low ground pressure to cut the grass safely, taking small plots in rotation and leaving long grass nearby as a refuge. To learn more about how disturbance

“IN AN OTHERWISE NORMAL INNER-CITY PARK, I SEE MORE AND MORE BURROWS, AND WATER VOLES POPPING UP LIKE JACK-IN-THE-BOXES.”

FUR COLOUR: IN THE BLACK

Scotland's water voles are thought to have different ancestors from the mostly chestnut-brown English and Welsh populations. Water voles colonised the UK during the Ice Age, and genetic studies have shown that two distinct populations took different routes. Scotland's darker lineage are believed to have come across a land bridge from the Iberian Peninsula, while England and Wales were colonised from Southeast Europe. Most of Glasgow's water voles are black, though some are brown.



WATER VOLES



Above: Glasgow has probably been home to water voles for hundreds of years but reliable records have only been kept in more recent times. Right: Robyn Stewart is... Above right: cranhill

affects the water voles, individually and as a colony, tiny radio transmitter collars will be fitted to monitor their behaviour and daily range.

During the summer breeding season, Robyn continues, the females use latrines to demarcate their territory. They scratch at scent glands on their flanks and then drum down on droppings with their hind legs to leave a signature scent for passing males. Females patrol their territory regularly, and the latrines can get quite large – a 20cm-long trail of brown sludge, often seen under a grassy tussock. Robyn has seen latrines as early as April, but not in 2018. Winter still had the year in its teeth and was not letting go.

SNOWED IN

This March and April the snow kept on coming, and postponed our visit a few times, but apparently it doesn't trouble the water voles. Snow insulates their "wonderfully complex system of burrows", and they're snug underground with everything they need – indoor toilets, overwinter food stores and even spare bedding.

The chill drives us indoors for a lunch break, where Robyn and Laurie swap water vole stories, nodding in

SNOW POSTPONED OUR VISIT BUT IT DOESN'T TROUBLE THE VOLES. THEY HAVE EVERYTHING THEY NEED UNDERGROUND TO STAY SNUG.

agreement about an intuition you develop, over time, that a certain patch of grass just "feels water vole-y". Laurie remembers seeing water voles – or, more often, signs of their presence – when he was a child in the Scottish Borders exploring disused limekiln ponds in search of frogspawn, great-crested newts and dragonflies. The ponds were filled in when a new road was built, the rich wetland habitat was lost, and the water voles disappeared.

Laurie's experience in Berwickshire is a microcosm of the wider UK story. A survey in the late 1990s showed that almost 90 per cent of the water vole population disappeared in 1989–1998, mostly due to habitat loss, exacerbated by predation by American mink.

GREENS AND GRASSLAND

Robyn wonders if we exaggerate the difference between riparian and fossorial lifestyles in water voles. After all, these are tenacious and highly adaptable small mammals that feed on a wide range of grasses and other vegetation (studies have identified 227 plant species in their diet). While they naturally are drawn to the rich vegetation around rivers, streams and pools, if there is no break in the habitat, they'll happily spread into surrounding grasslands. All they need are good food and soft soil.

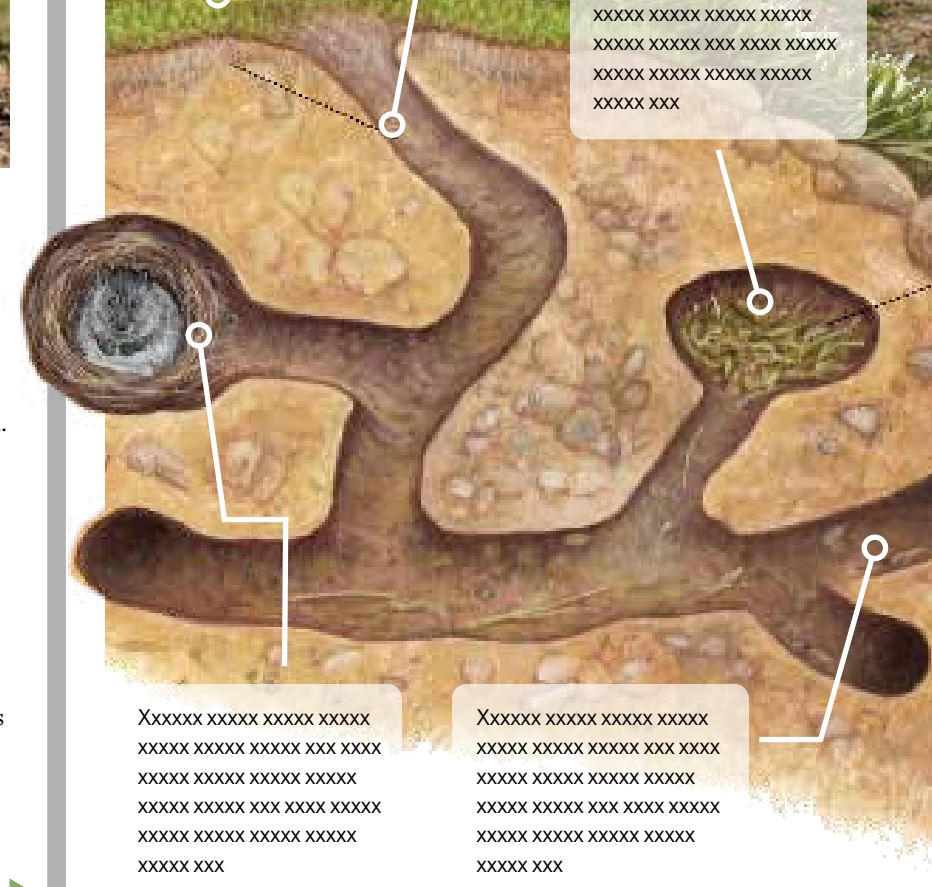
XXXXXXXXXX XXXXXXXXXXXXX
XXXXXXXX XXXXX



XXXXXX XXXXX XXXXX XXXXX
XXXXXX XXXXX XXXX XXXX
XXXXXX XXXXX XXXXX XXXXX
XXXXXX XXXXX XXX XXXX XXXXX
XXXXXX XXXXX XXXXX XXXXX
XXXXXX XXXX

XXXXXX XXXXX XXXXX XXXXX
XXXXXX XXXXX XXXXX XXXX
XXXXXX XXXXX XXXXX XXXXX
XXXXXX XXXXX XXX XXXX XXXXX
XXXXXX XXXXX XXXXX XXXXX
XXXXXX XXXX

XXXXXX XXXXX XXXXX XXXXX
XXXXXX XXXXX XXXXX XXXX
XXXXXX XXXXX XXXXX XXXXX
XXXXXX XXXXX XXX XXXX XXXXX
XXXXXX XXXXX XXXXX XXXXX
XXXXXX XXXX



XXXXXX XXXXX XXXXX XXXXX
XXXXXX XXXXX XXXXX XXXX
XXXXXX XXXXX XXXXX XXXXX
XXXXXX XXXXX XXX XXXX XXXXX
XXXXXX XXXXX XXXXX XXXXX
XXXXXX XXXX

XXXXXX XXXXX XXXXX XXXXX
XXXXXX XXXXX XXXXX XXXX
XXXXXX XXXXX XXXXX XXXXX
XXXXXX XXXXX XXX XXXX XXXXX
XXXXXX XXXXX XXXXX XXXXX
XXXXXX XXXX

FOSSORIAL WATER VOLE FIELD SIGNS

DROPPINGS

The definitive field sign for all water voles, both fossorial and aquatic. Droppings are 8–12mm long, tubular with blunt ends, and green when fresh but dark brown when dry. They can be found all year. Latrines are conspicuous piles of flattened droppings, usually with fresh ones on top, and are found only in the breeding season; they are associated with scent marking.



SOIL MOUND

Also known as a tumulus, this flattened mound resembles a molehill but is not as tall or conical. Found in open grassy areas, often alongside a burrow entrance, usually in clusters. Mostly seen in spring and autumn during breeding and dispersal.

BURROW ENTRANCE

Wider than it is tall, 4–8cm in diameter, and well-defined when in use. A fan-shaped mound of soil outside indicates the burrow is freshly dug. Found on both slopes and flat ground, usually in open tussocky grassland.



FEEDING STATION

Another field sign common to all water voles. The piles of gathered plant material may include grasses, sedges, rushes, bark, seeds, and berries. Material may be of varying lengths, but is always cut at a 45° angle. In fossorial water voles, piles are found at the base of a grass tussock and well covered.



What has probably happened in Britain is that the land is so heavily managed, we've largely restricted water voles to the edge of watercourses. Fossorial water voles cling on in Glasgow, where they may have been for hundreds of years, and there are also some on a few islands in the Inner Hebrides. Could there be others? It's likely that more fossorial populations exist elsewhere, unnoticed, because we only go looking for water voles near water.

SPECIAL NEIGHBOURS

Glasgow has 'watery water voles' too, in nearby wetlands, though we are not searching for those today. Our last port of call is a patch of green beside a housing estate, its slopes dotted with vole burrows and crowned with pigeon lofts, or 'doocots'. The site has been earmarked for development and so ecologists have been brought in to move the resident voles to a new site. Water voles are a protected species and it is an offence to damage or disturb their habitat, but the team has a licence and know what they are doing. They carefully remove the turf, revealing the extensive network of tunnels just beneath.

A nearby householder stops to chat. He knows about

the water voles – people used to think they were “big, black rats”, he says. But word's got around that they are something special: a rare population of a nationally endangered species. He's seen one pop up in his garden, he adds with a sense of pride.

Robyn says there's mostly been a very positive reception to the Glasgow Water Vole Project. It involves a challenging mix of science and diplomacy: devising and managing research projects, and liaising with housing developers, residents, council officials and local schoolchildren – some of whom have water voles in their school playgrounds.

There's a real commitment from all stakeholders to “get it right” Robyn says, for both water voles and people. “It's all part of a growing acknowledgement that wildlife – and the wild – is not just in the far-flung reaches of the Highlands, but right here in Glasgow.” 🐾

🌱 GET INVOLVED

Spring survey work for the National Water Vole Monitoring Programme is coming to an end, but you can still submit one-off sightings at www.ptes.org/get-involved/surveys.



ANNA LEVIN is an author and former section editor of BBC Wildlife;

www.annalevinwriting.co.uk.