

Wild Waterways Drains and Ditches

with Pete Lambert, head of Land and Water at Shropshire Wildlife Trust



www.shropshirewildlifetrust.org.uk

What is a ditch?

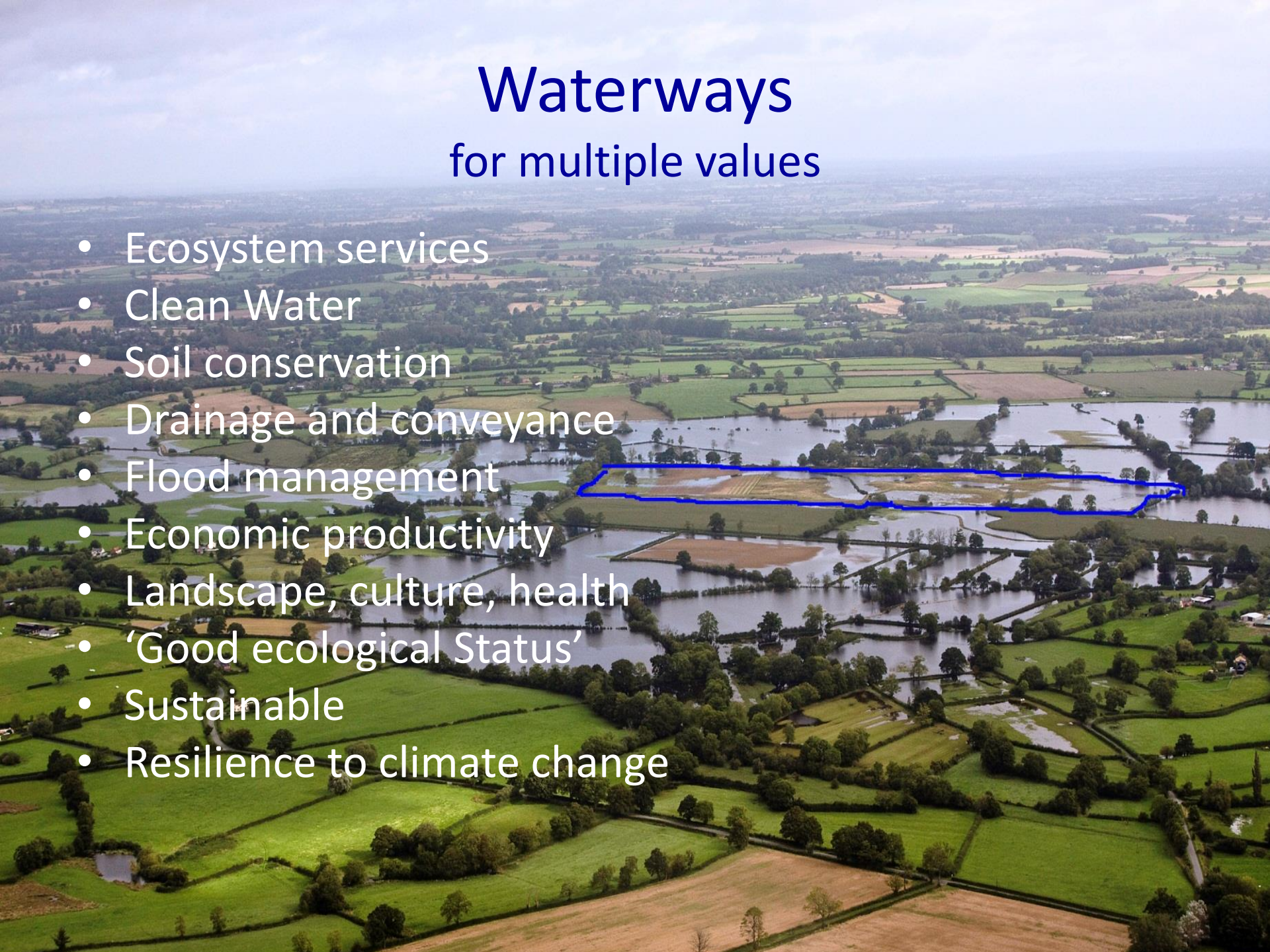
- a narrow channel dug at the side of a road or field, to hold or carry away water.

Trench, trough, channel, dyke, drain, gutter, gully, moat, duct, watercourse, conduit, ha-ha, fosse, sap, leat, cut, chase, stank, sheugh, main or a fleet

Waterways

for multiple values

- Ecosystem services
- Clean Water
- Soil conservation
- Drainage and conveyance
- Flood management
- Economic productivity
- Landscape, culture, health
- 'Good ecological Status'
- Sustainable
- Resilience to climate change



Diatoms

Microorganisms.

All aquatic environments and soil.

Produce ~ 20% of our oxygen.

Dense cell walls = sink.

Mostly non-motile.

Asexual.

Photosynthetic.

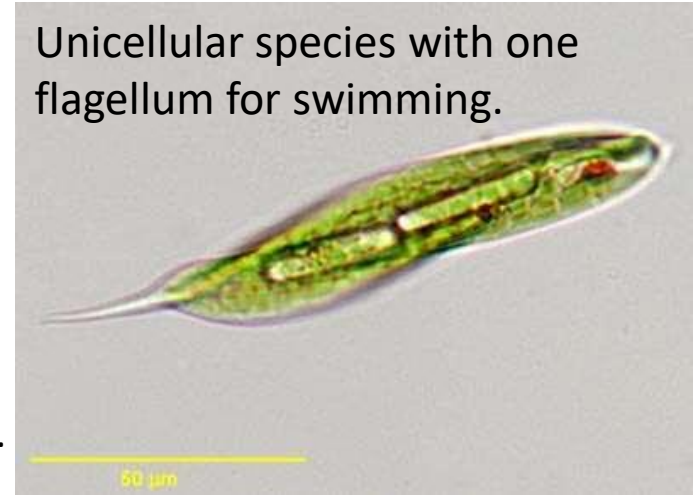


Some consume organic matter so don't depend on light.

Algae

- Aquatic 'simple' plants.
- Almost every aquatic habitat.
- Diverse- microscopic unicellular species to seaweeds.
- Some unicellular species swim using 1 – 2 flagella.

Unicellular species with one flagellum for swimming.



Filamentous algae.

- Single celled.
- Form long chains/filaments.
- Appear as a matted wool like texture.
- 'Pond scum': large mats on the surface of the water.



Pond scum

Mosses & liverworts

Bryophytes.

Mosses

- Aquatic mosses longer than terrestrial.
- Common water moss and *Sphagnum* moss –inhabit slow moving waterways.



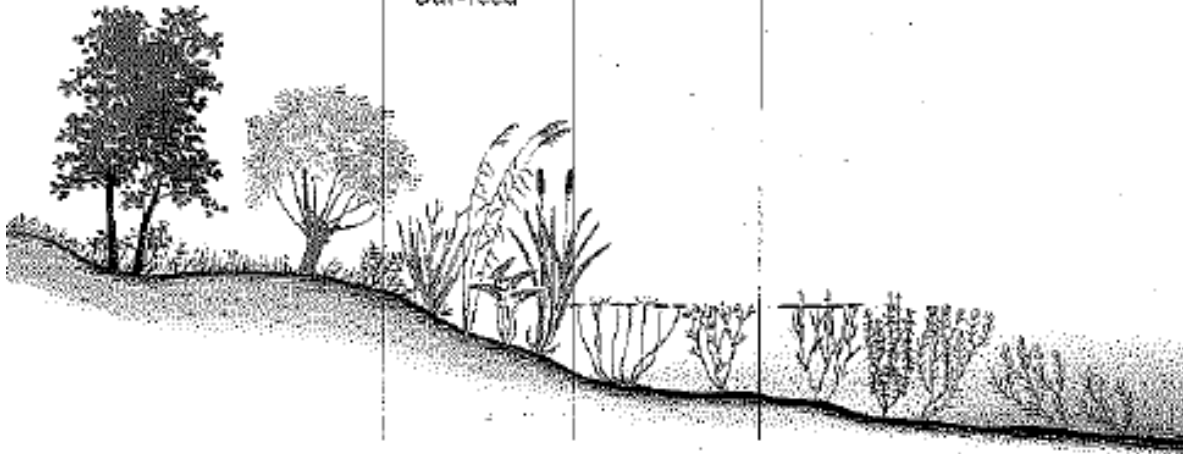
Liverworts

- Name: Liver-like shape of some species = liver disease cure.
- Occur in moist habitats.
- Leaf like stems / lobed leaves.
- Prevent erosion of banks.



Plants

MOIST MARGIN (marsh flora)	WET MARGIN (swamp or fen flora)	SHALLOWS (floating- leaved plants)	DEEP WATER (submerged plants)	OPEN WATER (lake bed, aphotic)
Willows	Yellow Flag	Water-lilies	Canadian Pondweed	Phyto- plankton
Alder	Arrowhead	Some pondweeds	Hornwort	
Ragged Robin	Water plantains	Fringed Water-lily	Some pondweeds	
Water Avens	Flowering Rush	Bogbean	Some water crowfoots	
Marsh Cinquefoil	Amphibious Bistort	Some water crowfoots	Water Soldier	
Marsh Helleborine	Common Reed	Floating Sweet-grass	Horned Pondweed	
Marsh-orchids	Bulrush	Reed Sweet- grass		
Many grasses	Branched Bur-reed	Pond sedges		



Plant zonation in a lowland mire.

Water bodies and the area near them are often separated into zones depending on the inhabiting plant species.

Easiest to detect zoning when there is a gentle slope.

Plants near water

At a moist margin near rivers you find:



Willows



Orchids



Water avens



Alder

Emergent plants

At a wet margin you find:



Water plantains



Greater tussock-sedge



Amphibious bistort



Arrowhead



Reedmace



Yellow flag

Submerged plants

In the shallows you find:



Water-lillies



Pond sedges



Water bogbean



Reed sweet-grass



Floating sweet-grass

Submerged plants

In the deep water you find:



Horned pondweed



Water soldier



Water crowfoots



Hornwort



Canadian pondweed



New Zealand Pygmy weed

Invasive plants



Himalayan Balsam



Japanese knotweed

Flukes & Flatworms

Flukes



Internal parasites of fish.

Some are ectoparasites – attach to gills, fins and skin.

Eat skin and suck blood – pale colour in the fish host.

Poor water quality + overcrowding = outbreak.

Flatworms

Flat, unsegmented worms.
Cilia to glide.

Small flatworms - < 3mm.
Form chains <10 – 20 mm.
Usually require a Microscope.



Leeches

Ringed bodies - sucker at both ends.

Front sucker: round, large and easy to see – used for feeding.

Posterior sucker: indistinct and used to fix in place.

2-10 eyes.



Medicinal leech

Sucks blood of mammals, amphibians & fish.

Fenland & marshy pools.

Near extinction due to habitat drainage.



Horse leech

Ingests small invertebrates, carrion and dying fish & amphibians.

Sucks blood of large molluscs.

Scarce – in shallow weedy pools.

Mayfly larvae

Swimming



Flattened



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www.uk-wildlife.co.uk

Burrowing



Mayfly

2 flying forms.

Eggs in water hatch into 'Dun' – flying nymph.

Dun moults into the 'Spinner' – sexually mature.

3 tails and 2 complete pairs of wings.



Drab.

Shorter tails.

Coloured wings – usually yellow or green.



Usually more transparent wings with dark veins and markings.

Usually bigger.

Longer tails.

Stonefly

(Not same species)



Flattened cylinder.

No gills.

2 tails.

Long antenna.

Mature nymphs have 2 pairs of wing buds.

Bad at swimming.

Mature nymphs crawl onto vegetation.



2 pairs of membranous wings.

Wings beat out of synch = weak hesitant flight.

Live in clean, nutrient poor waters.

Damselfly

- 4 wings of same length.
- Weak fliers.
- Females more drab.
- Bright colour develops over time.
- Nymphs – 2 lamellae (tails), noticeable antennae and long legs.
- Swim with undulations.



Dragonfly

- Long slender abdomen, large thorax.
- 2 forewings larger than hindwings.
- Strong fliers, wing beats in figure of 8.
- Nymphs – no lamellae (tails), 5 short spines instead.



Water bugs

Forewings have a leathery opaque base.

Rest of the wing (and hindwings) - membranous & mostly transparent.

Triangular head with piercing mouth parts to suck blood of prey.

- Surface-dwelling bugs



Water cricket



Pond skater



Water measurer

- Subsurface bugs



Water boatman



Saucer bug



Water scorpion

Caddisfly



- Larvae – long segmented abdomen.
- Use cases made of sand, bits of stone and plant matter.



- One family make silk refuge nets.



- Adults – antenna as long or longer than their body.
- Hairy wings.
- Fly in late afternoon, evening or night.

Two winged Fly

- Actual flies.
- Forewings for flight.
- Hindwings are nubs for balance – halteres.



- Commonly find midges, mosquitoes, craneflies and horseflies.



Beetle

- Forewings modified into a hard case - **elytra**.
- Forewings meet in the middle = a straight horizontal line.
- Hind legs usually flat with fringe of dense hair for swimming.
- Found all year round – hibernate in winter.



Whirligig beetles



Diving beetles



Scavenger beetles



Spiders

Water spider - only truly aquatic species.

Domed silk tent in weeds. Also for eggs.
Air bubble carried from surface.
Common and widespread.
Weedy ponds and ditches.



Raft spiders.

Float on emergent vegetation. Widespread but scarce.



Wolf spiders.

On emergent or floating vegetation in fens and marshes.
Widespread and common.

Water mites



Need a microscope to ID to species.

Juvenile mites of 3 pairs of legs. Adults have 8 legs (Arachnid).

Juveniles are parasitic to insects by sucking their fluid – usually the beetles and bugs.

Crustaceans

Many minute forms that require microscope.



Crayfish

- Freshwater crustaceans that look like lobsters.

White-clawed crayfish - Britain's only native species.

Under rocks & logs in day.

Prey on larvae, snails & plants in day.



Signal crayfish – Introduced from America.

Out-competes White-clawed and brought a deadly fungus against which the white-claw has no defence.



Snails & Limpets

Limpets

Cone-shaped shell.
Fast rocky rivers.
Widespread.



Snails

Variable.
Also on the dry land
near water.



Ramshorn snails

- Identify by size and shape of coils.
- Red or black forms.
- Red are the colour of their blood as they don't have melanin.
- Eat algae, plants and dead fish.



Great ramshorn



Twisted ranshorn

Small Fish



Brook lamprey



Minnow



Fish



European Eel

Amphibians and reptiles



Grass snake



Great Crested newt



Common frog

Mammals



Water vole



Widespread.

All year round.

Smaller than brown rat and smaller ears.

Burrows in river bank with nibbled grass at entrance.

Eat in the same place – piles of nibbled grass and stems with 45° cut edge.



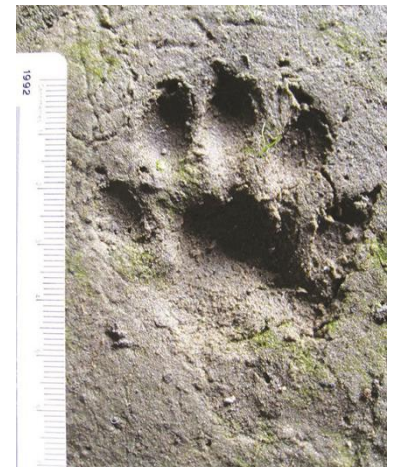
European otter

Native.

Now in every county after
huge decline in 50s & 60s.



Holts in river beds.
5 digit prints.
Spraint.



Mink



- Invasive species - escaped from fur farms in the 1950s and 1960s
- It is an active predator, feeding on anything it is big enough to catch.
- Had a significant impact on water vole populations



Distributed throughout UK



Footprint tracks

Waders



Green sandpiper

Green sandpiper in flight



Can be mistaken for a house martin in flight
Feed on insects
Widespread, favouring freshwater bogs, rivers, wetlands, grasslands and moorlands



Snipe



Woodcock

Snipe and woodcock are very similar however Snipes are smaller and have dark stripes on their heads and backs

Crowning glory



Grey heron



Grey heron with chicks

- Widespread.
- Predators.
- Territorial.











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Thank you
for
listening !

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