South West Colour Library

a project by Ria Burns, supported by South West England Fibreshed

Ria Burns
Naturally dyed local wool knitwear

FIBRESHED
South West England

The **South West Colour Library** aims to survey natural dye plants around the SWE Fibreshed region, and build a regional colour library.

The project focuses on wild, rather than cultivated, dye plants in order to see how the local flora, landscape, soil and water affect dye outcome.

Four place-based colour studies were undertaken around the SWE Fibreshed in Summer 2023. Samples were dyed on yarn sourced from the case study location or as close as possible to it.

From these samples, hyperlocal colour palettes were created for inspiration and education. These outcomes are open source.

Case studies

1. Tamarisk Farm, Dorset
2. Lower Hampen Farm, Cotswolds
3. Baddaford Collective, Dartmoor
4. East Bristol (Urban Study)

South West Colour Library - Project Outline

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Plants were gathered from pastures and uncultivated areas spread around each case study. A mixture of common dye plants and unknown wild plants were gathered.

For each case study, a ‘unique plant’ was chosen which represents the location best. These were not typical dye plants.

Each plant was then photographed before being chopped and added to ‘sous-vide’ style bags with water drawn from the site, and yarn.

In each sample, 2 mini hanks of yarn were dyed. One was mordanted with alum and the other was not mordanted.

No modification was made to the dye liquids; the colour outcome was influenced solely by the water and plants alone.

Dye recipe:

- Chop equal weight of plant to yarn and add to bag with enough water to cover. Seal.
- Heat ‘sous-vide’ bags in water to 80 degrees and keep at that temperature for one hour.
- Leave to cool overnight before rinsing and drying. Label well!

1. **Plant common name**

(Botanical name)

Part of plant used for dye

Water pH after dyeing

Alum mordant

No mordant

Yarn samples

Method and Example Dye Sample

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Location:

Jurassic Coast, Dorset

Soil:

Limestone, clay, alkaline

Water used:

Mains, hard, pH 7.8

Yarn used:

Organic Dorset Down Aran (from own flock)

Unique plant:

Tamarisk

Date of fieldwork:

10th June 23

Case Study 1 – Tamarisk Farm

1. Dyer's greenweed

(Genista tinctoria)

Flowers and plant tops

pH: 7.1

Alum mordant

No mordant

2. Bramble

(Rubus fructicosus)

Leaves and stems

pH: 6.4

Alum mordant

No mordant

3. Hawthorn

(Crataegus monogyna)

Leaves and stems

pH: 6.6

Alum mordant

No mordant

Tamarisk Farm – 10th June 2023

4. Wild privet

(Ligustrum vulgare)

Leaves and flowers

pH: 6.9

Alum mordant

No mordant

5. Gorse

(Ulea europaeus)

Flowers

pH: 7.1

Alum mordant

No mordant

6. Wild madder

(Rubia peregrina)

Plant tops

pH: 6.9

Alum mordant

No mordant

Tamarisk Farm – 10th June 2023

7. Wild madder

(Rubia peregrina)

Roots

pH: 6.8

Alum mordant

No mordant

8. Yellow-wort

(Blackstonia perfolatia)

Flowers and plant tops

pH: 7.1

Alum mordant

No mordant

9. Cornflower

(Centaurea cyanus)

Flowers

pH: 6.4

Alum mordant

No mordant

Tamarisk Farm – 10th June 2023

10. Pear

(Pyrus commis)

Leaves

pH: 6.5

Alum mordant

No mordant

11. Tamarisk

(Tamarix)

Leaves and stems

pH: 6.5

Alum mordant

No mordant

12. Comfrey

(Symphytum)

Leaves and stems

pH: 6.8

Alum mordant

No mordant

Tamarisk Farm – 10th June 2023

Ria Burns

Naturally dyed local wool knitwear

13. Dock

(Rumex)

Leaves

pH: 6.5

Alum mordant

No mordant

14. Dock

(Rumex)

Root

pH: 6.7

Alum mordant

No mordant

15. Beech

(Fagus sylvatica)

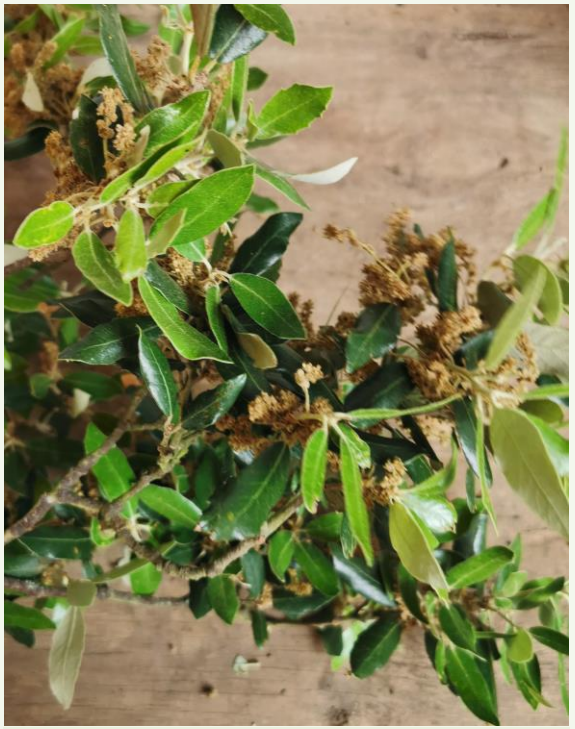
Leaves

pH: 7.3

Alum mordant

No mordant

Tamarisk Farm – 10th June 2023



16. Holm oak

(Quercus ilex)

Leaves and flowers

pH: 5.9

Alum mordant

No mordant

Tamarisk Farm – 10th June 2023

Location:

Cotswolds AONB, Gloucestershire

Soil:

Limestone brash/clay

Water:

Aquifer spring, pH 8, potential nitrogen contamination

Yarn used:

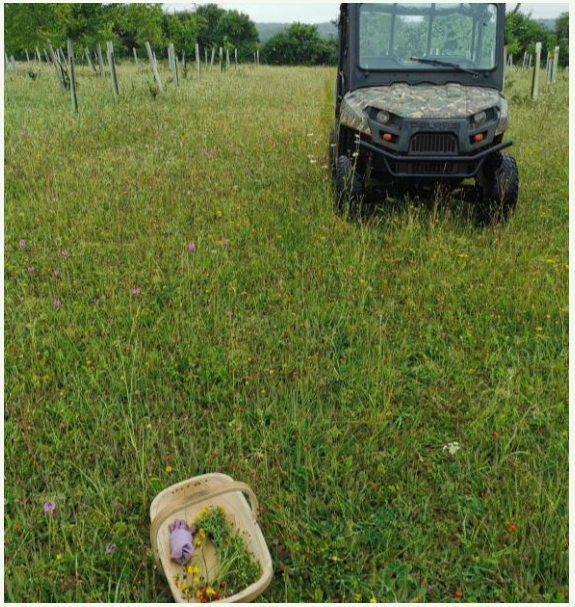
Devon Closewool DK (from own flock)

Unique plant:

Sanfoin

Date of fieldwork:

20th June 23



Case Study 2 – Lower Hampen Farm

1. Sanfoin

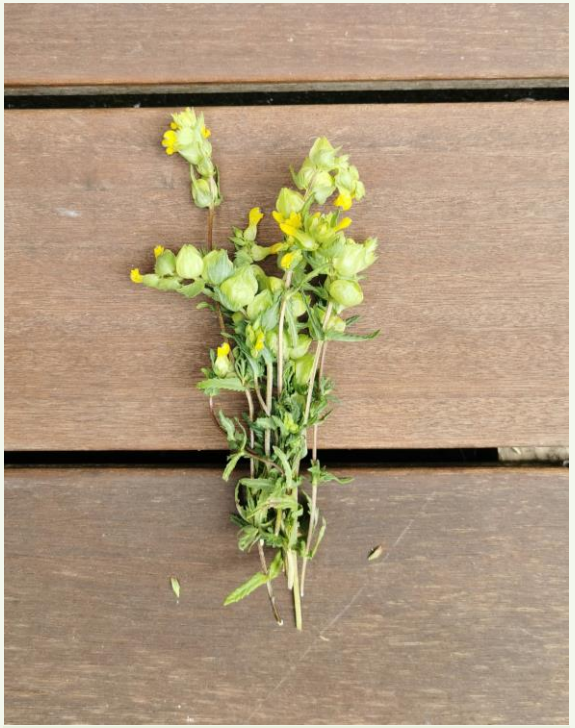
(Onobrychis vicifolia)

Flowers and plant tops

pH: 6.7

Alum mordant

No mordant



2. Yellow rattle

(Rhianthus minor)

Flowers and plant tops

pH: 6.3

Alum mordant

No mordant

3. Knapweed

(Centaurea nigra)

Flowers and plant tops

pH: 6.3

Alum mordant

No mordant

Lower Hampen Farm – 20th June 2023

4. Walnut

(Juglans regia)

Leaves

pH: 6.6

Alum mordant

No mordant

5. Apple

(Malus domestica)

Leaves

pH: 6.5

Alum mordant

No mordant

6. Rowan

(Sorbus aucuparia)

Leaves

pH: 6.1

Alum mordant

No mordant

Lower Hampen Farm – 20th June 2023

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7. Ragwort

(Sencia jacobea)

Flowers and plant tops

pH: 5.9

Alum mordant

No mordant

8. Plum

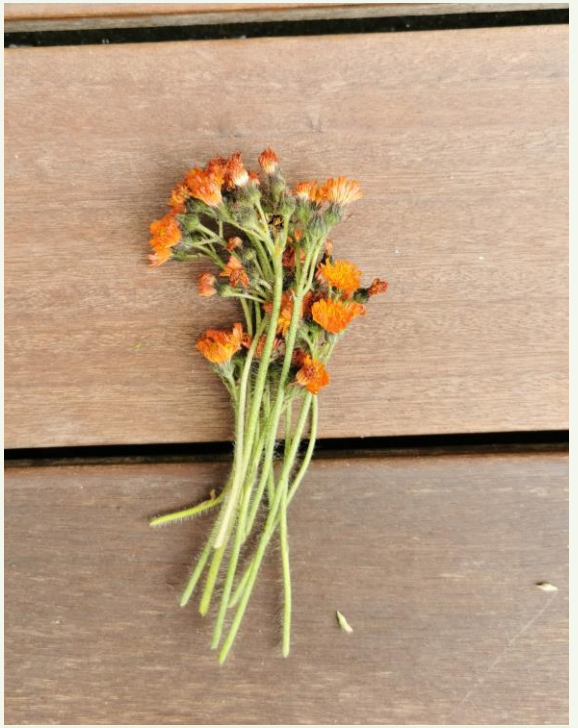
(Prunus domestica)

Leaves

pH: 6.5

Alum mordant

No mordant



9. Fox-and-cubs

(Pilosella aurantiaca)

Flowers and plant tops

pH: 6.7

Alum mordant

No mordant

Lower Hampen Farm – 20th June 2023

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10. Hawthorn

(Crataegus monogyna)

Leaves and stems

pH: 6.3

Alum mordant

No mordant

11. Selfheal

(Prunella vulgaris)

Flowers and plant tops

pH: 6.8

Alum mordant

No mordant

12. White clover

(Trifolium repens)

Flowers

pH: 6.6

Alum mordant

No mordant

Lower Hampen Farm – 20th June 2023

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13. Hedge bedstraw

(Galium mollugo)

Plant tops

pH: 7

Alum mordant

No mordant

14. Hedge bedstraw

(Galium mollugo)

Roots

pH: 6.9

Alum mordant

No mordant

15. Lady's bedstraw

(Galium verum)

Plant tops

pH: 6.9

Alum mordant

No mordant

Lower Hampen Farm – 20th June 2023

16. Lady's bedstraw

(Galium verum)

Roots

pH: 7

Alum mordant

No mordant

17. Black medick

(Medicago lupulina)

Flowers and plant tops

pH: 7

Alum mordant

No mordant

18. Cherry

(Prunus)

Leaves

pH: 6.3

Alum mordant

No mordant

Lower Hampen Farm – 20th June 2023

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Naturally dyed local wool knitwear

Location:

Dartmoor, Devon

Soil:

Sandy loam, acidic pH 6

Water source:

Mains, soft, pH 7.2

Yarn used:

Dartmoor Merino DK (from Rushlade Wool, 5 miles away)

Unique plant:

Pineapple weed

Date of fieldwork:

10th July 23

Case Study 3 – Baddaford Collective

1. Ragwort

(Senecio jacobea)

Flowers and plant tops

pH: 6

Alum mordant

No mordant

2. Pineapple weed

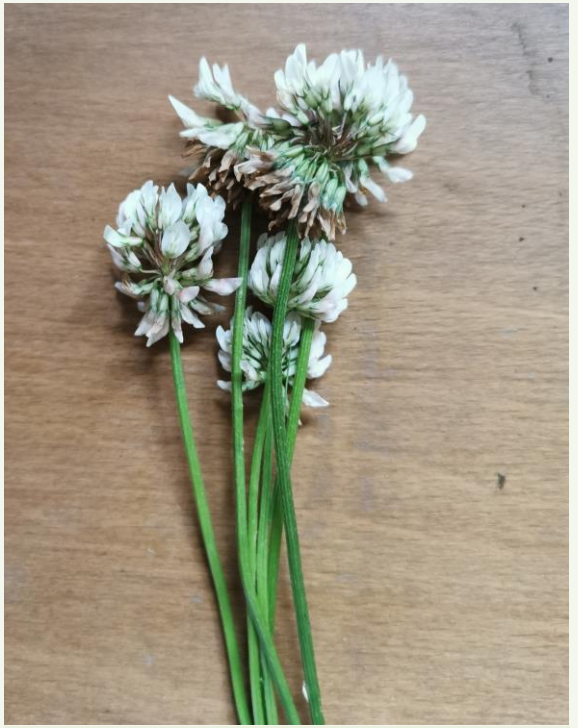
(Matacaria discoidea)

Flowers and plant tops

pH: 6.4

Alum mordant

No mordant



3. White clover

(Trifolium repens)

Flowers

pH: 6.1

Alum mordant

No mordant

Baddaford Collective – 10th July 23

Ria Burns

Naturally dyed local wool knitwear

4. Male fern

(Dryopteris flix-mas)

Leaves

pH: 6.1

5. Marsh woodwort

(Stachys palastris)

Flowers and plant tops

pH: 5.9

6. Black walnut

(Juglans nigra)

Leaves

pH: 5.9

Alum mordant

No mordant

Alum mordant

No mordant

Alum mordant

No mordant

Baddaford Collective – 10th July 23

Ria Burns

Naturally dyed local wool knitwear

7. Willow

(Salix)

Leaves

pH: 6.1

Alum mordant

No mordant

8. Nipplewort

(Lapsana communis)

Flowers and plant tops

pH: 6.3

Alum mordant

No mordant

9. Alder

(Alnus glutinosa)

Leaves

pH: 5.6

Alum mordant

No mordant

Baddaford Collective – 10th July 23

Ria Burns

Naturally dyed local wool knitwear

10. Buddleia

(Buddleja davidii)

Flowers

pH: 5.6

Alum mordant

No mordant

11. Yarrow

(Achillea millefolium)

Flowers and plant tops

pH: 5.6

Alum mordant

No mordant

12. Hawthorn

(Crataegus monogyna)

Leaves and stems

pH: 5.7

Alum mordant

No mordant

Baddaford Collective – 10th July 23

Ria Burns

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13. Oak

(Quercus robur)

Leaves

pH: 6

Alum mordant

No mordant

14. Dock

(Rumex)

Seeds

pH: 6.1

Alum mordant

No mordant

15. Marsh thistle

(Cirsium palustre)

Flowers and plant tops

pH: 5.4

Alum mordant

No mordant

Baddaford Collective – 10th July 23

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16. Alder

(Aldus glutinosa)

Immature cones

pH: 4.6

Alum mordant

No mordant

17. Chicory

(Cichorium intybus)

Flowers and plant tops

pH: 5.6

Alum mordant

No mordant

18. Ground ivy

(Glechoma hederacea)

Leaves and stems

pH: 6

Alum mordant

No mordant

Baddaford Collective – 10th July 23

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Location:

East Bristol

Soil:

Heavy clay

Water source:

Rain, pH 6.5

Yarn used:

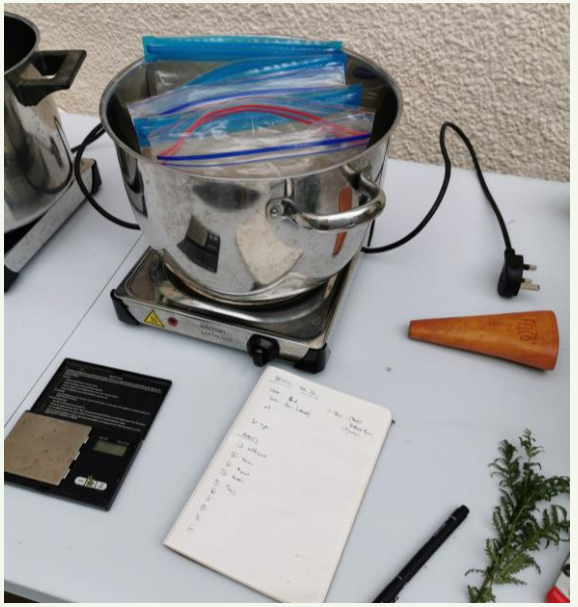
Shetland-Romney 4ply (from Fernhill Fibre, 15 miles away)

Unique plant:

Horsetail

Date of fieldwork:

18th July 23



Case Study 4 – East Bristol

1. Wild carrot

(Daucus carota)

Flowers and plant tops

pH: 5.8

Alum mordant

No mordant

2. Yarrow

(Achillea millefolium)

Flowers and plant tops

pH: 5.6

Alum mordant

No mordant

3. Ragwort

(Senecia jacobea)

Flowers and plant tops

pH: 5.5

Alum mordant

No mordant

East Bristol – 18th July 2023

Ria Burns

Naturally dyed local wool knitwear

4. Horsetail

(Equisetum arvense)

Leaves and stems

pH: 5.8

Alum mordant

No mordant

5. Tansy

(Tanacetum vulgare)

Flowers and plant tops

pH: 5.8

Alum mordant

No mordant

6. Mugwort

(Artemsia vulgaris)

Flowers and plant tops

pH: 5.5

Alum mordant

No mordant

East Bristol – 18th July 2023

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7. Buddleia

(Buddleja davidii)

Flowers

pH: 6.1

8. Callery pear

(Pyrus calleryena)

Leaves

pH: 4.9

9. Herb robert

(Geranium robertianum)

Flowers and plant tops

pH: 4.7

Alum mordant

No mordant

Alum mordant

No mordant

Alum mordant

No mordant

East Bristol – 18th July 2023

Ria Burns

Naturally dyed local wool knitwear

10. Hawthorn

(Crataegus monogyna)

Leaves and stems

pH: 5.4

Alum mordant

No mordant

11. Rowan

(Sorbus aucuparia)

Berries

pH: 4

Alum mordant

No mordant

12. Hemp-agrimony

(Eupatorium cannabinum)

Flowers and plant tops

pH: 5.5

Alum mordant

No mordant

East Bristol – 18th July 2023

13. Wild cherry

(Prunus avium)

Leaves

pH: 5.2

Alum mordant

No mordant

14. Chicory

(Cichorium intybus)

Flowers and plant tops

pH: 5.4

Alum mordant

No mordant

15. Fig

(Ficus carica)

Leaves

pH: 5.9

Alum mordant

No mordant

East Bristol – 18th July 2023

16. Rosebay willowherb

(Chamaenerion angustifolium)

Flowers and plant tops

pH: 4.9

Alum mordant

No mordant

17. Sumac

(Rhus coriaria)

Leaves

pH: 4.6

Alum mordant

No mordant

18. Toadflax

(Linaria purpuea)

Flowers and plant tops

pH: 5.4

Alum mordant

No mordant

East Bristol – 18th July 2023

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Each case study has one plant repeated throughout – Hawthorn. This was chosen as it is an abundant native plant found in the wild and used in hedgerows.

This was used as a 'control' for the project to note how the dye results varied across the region.

Potential reasons for variation:

- Human/equipment error in plant to yarn weight ratio
- Variants in yarn – breed of sheep, natural colour, yarn construction
- Different variety of Hawthorn
- Age of plant
- Leaf to stem ratio
- Water – mineral content, pH
- Soil type and growing conditions

Tamarisk	Lower Hampen	Baddaford	Bristol
pH 6.6	pH 6.3	pH 5.7	pH 5.4

Control Plant - Hawthorn

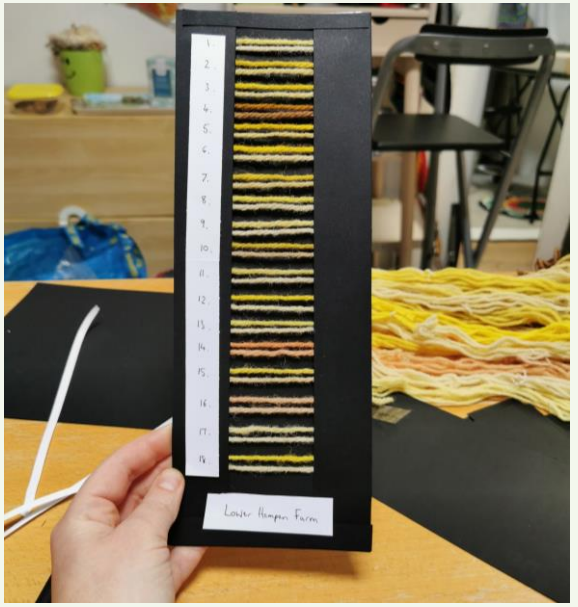
All colours created were tested for lightfastness – their resistance to fading from light exposure. Some natural dyes can fade and it is important to know this when considering a dyes' end use.

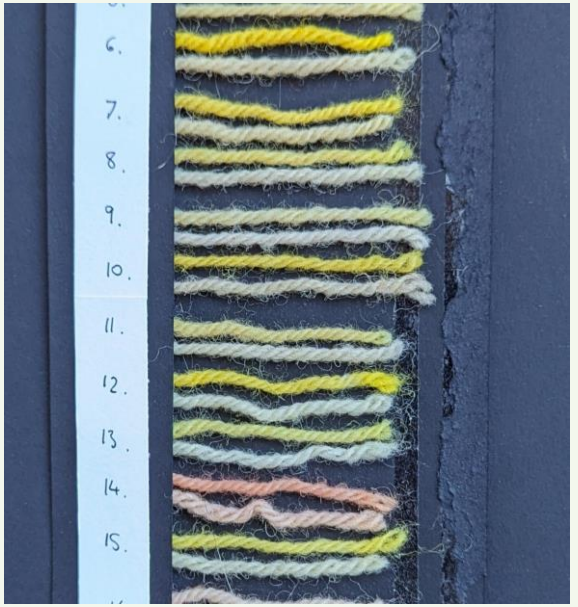
The most stable (less faded) dyes from each case study were selected in order to create their own reliable colour palette.

An easy, low-cost method for testing lightfastness is to sandwich the samples in between some black card, leaving some of the yarn exposed to daylight.

Leave these cards in direct sunlight (a windowsill will be fine) for at least two weeks, then remove the top layer of card.

The difference in colour between the exposed and unexposed samples will show you how fast the colour is.

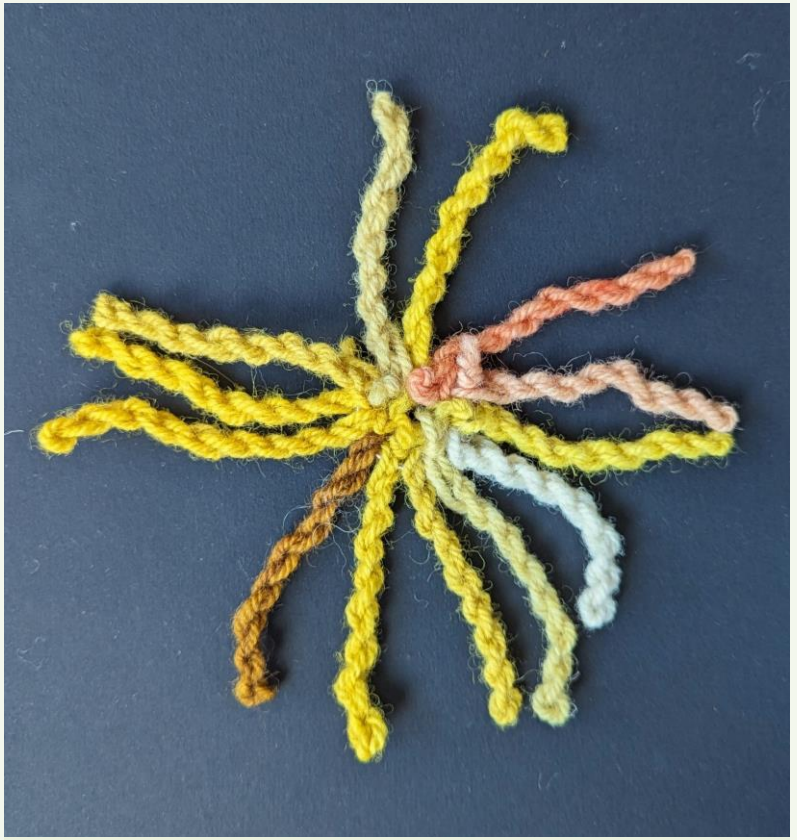




Testing Dyes for Lightfastness

Tamarisk Farm

- Dyer's greenweed
- Bramble
- Hawthorn
- Wild privet
- Pear leaf
- Wild madder
- Tamarisk
- Comphrey
- Dock root
- Beech leaf
- Holm oak



Lower Hampen Farm

- Sanfoin
- Yellow Rattle
- Knapweed
- Walnut leaf
- Apple leaf
- Rowan leaf
- Ragwort
- Hawthorn
- White clover
- Hedge bedstraw
- Ladies bedstraw
- Cherry leaf

Hyper Local Colour Palettes

Baddaford Collective

- Ragwort
- Pineapple weed
- White clover
- Black walnut leaf
- Alder leaf
- Yarrow
- Hawthorn
- Oak Leaf
- Alder cone

East Bristol

- Wild carrot
- Yarrow
- Horsetail
- Tansy
- Callery pear
- Herb Robert
- Hawthorn
- Fig leaf

Hyper Local Colour Palettes

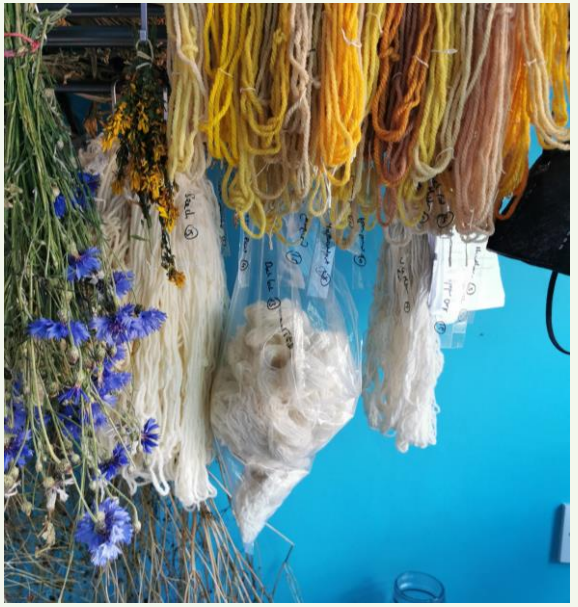
Ria Burns
Naturally dyed local wool knitwear

This document is open source and designed to be an inspiration for both producers and designers. Please do use this resource to create your own place-based colour studies!

I would love this project to develop and expand further across the South West Fibreshed region, building a larger library of colour.

For further case studies, I would like to investigate the use of plant based mordants to see if a suitable replacement for alum can be found. This will also increase the bioregional nature of the colours and improve sustainability of the dyes.

If you are a farmer or fibre producer in the South West of England and would like me to survey the wild dye plants on your land, contact me at hello@riaburns.co.uk



Final Thoughts and Ideas for Continuation

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