

Assessment of the threats to the Heritage Sheep breeds in Europe using a Geographical Information System

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Partners

UK	University of York / Dianna Bowles The Sheep Trust / Amanda Carson
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Greece	Aristotle University of Thessaloniki / Andreas Georgoudis National Agricultural Research Foundation / Christina Ligda
Netherlands	Centre for Genetic Resources / Lucia Kaal, Henri Woelders, Yvette de Haas, Sipke Joost Hiemstra
Slovenia	University of Ljubljana / Drago Kompan



HERITAGE SHEEP

- genetically distinct
- geographically concentrated
- adapted to their environments
- commercially farmed to economically support the local communities in which they are raised



Questionnaire

Developed and translated into local languages, data collected data from their local breeders associations

- Origin and history
- Factors affecting the population trends
 - Political, social, environmental
- Values
 - Contribution to the environment, adaptation, local economy etc
- Current situation and future trends
 - Promotional activities, breeding programs, conservation programs etc



Major Threats

- decrease in public funding
- lack of political will to support rural communities
- policies and legislation, including environmental schemes
- disease
- predators
- urbanisation
- poor return on product
- ageing population of farmers
- lack of marketing support
- inbreeding
- loss of skills



Geographical isolation

It was estimated that there are 26/45 where 90% or more of the total number of animals is actively farmed in the region associated with the breed and 19/45 breeds where >95% of the breed is concentrated



Geographical Representation of the data collected

- Combine the information on the breeds, threats, values, trends etc with the geographical location
 - deeper understanding of the current situation and the perspectives
 - wider dissemination of the outputs to stakeholders
 - tool for decision making



- Completing the database with geographical data fields at NUTS3 level
- Modification of the database format to geodatabase
- Creation of a dynamic application running under ARCGIS server

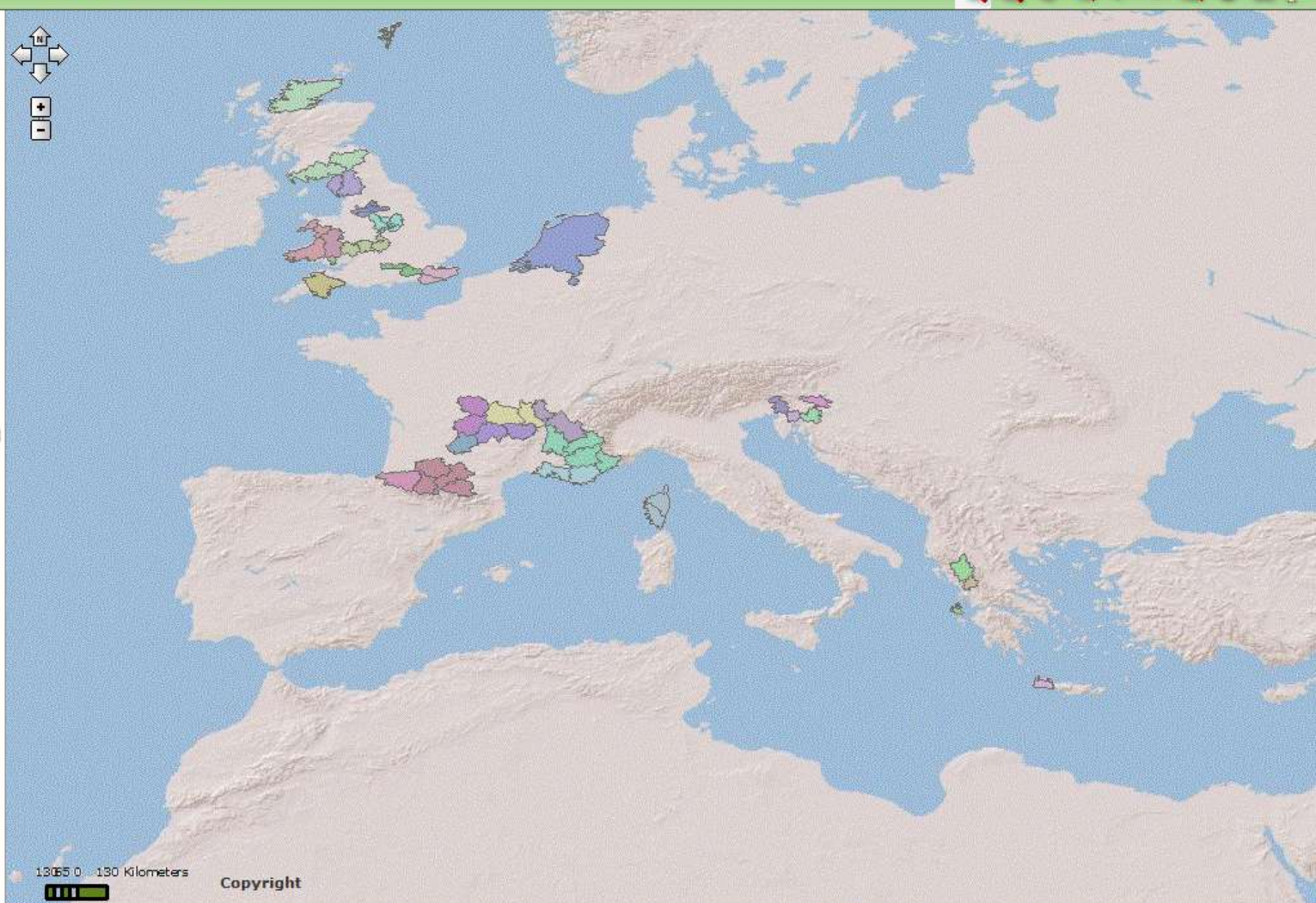


Locate Breed | Factors | Characteristics | Trends

Results

Map Contents

- ☒ breeds
 - ☒ BREED LOCATION
 - ☒ Europe
- ☒ breeders_sheep
 - ☒ Breeders & Sheep
- ☒ factors
 - ☒ FACTORS
- ☒ values
 - ☒ Characteristics



Done

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Locate Breed | Factors | Characteristics | Trends

Results

Map Contents

Locate Breed

- ☒ breeds
 - ☒ BREEDS
 - ☒ European
- ☒ breeders_sheep
 - ☒ Breeders & Sheep
- ☒ factors
 - ☒ FACTORS
- ☒ values
 - ☒ Characteristics

Breed Location

Basco Béarnaise

Basco Béarnaise
Bela Krajina Pramenka
Bizet
Black Blazed
Blue Texel
Boutsiko (Orino)
Bovec Sheep
Brecknock Hill Cheviot
Causses du Lot
Cheviot
Clun Forest
Corse
Dalesbred
Derbyshire Gritstone
Devon Closewool
Drenth Heath
Exmoor Horn
Flevolander
Frizarta
Grivette
Herdwick
Istrian Pramenka
Jezersko – Solcava
Katsika
Kefallinias
Kempen Heath
Limousine
Lonk
Manech Tête Noire
Manech Tête Rousse

13065 0 130 Kilometers

Copyright

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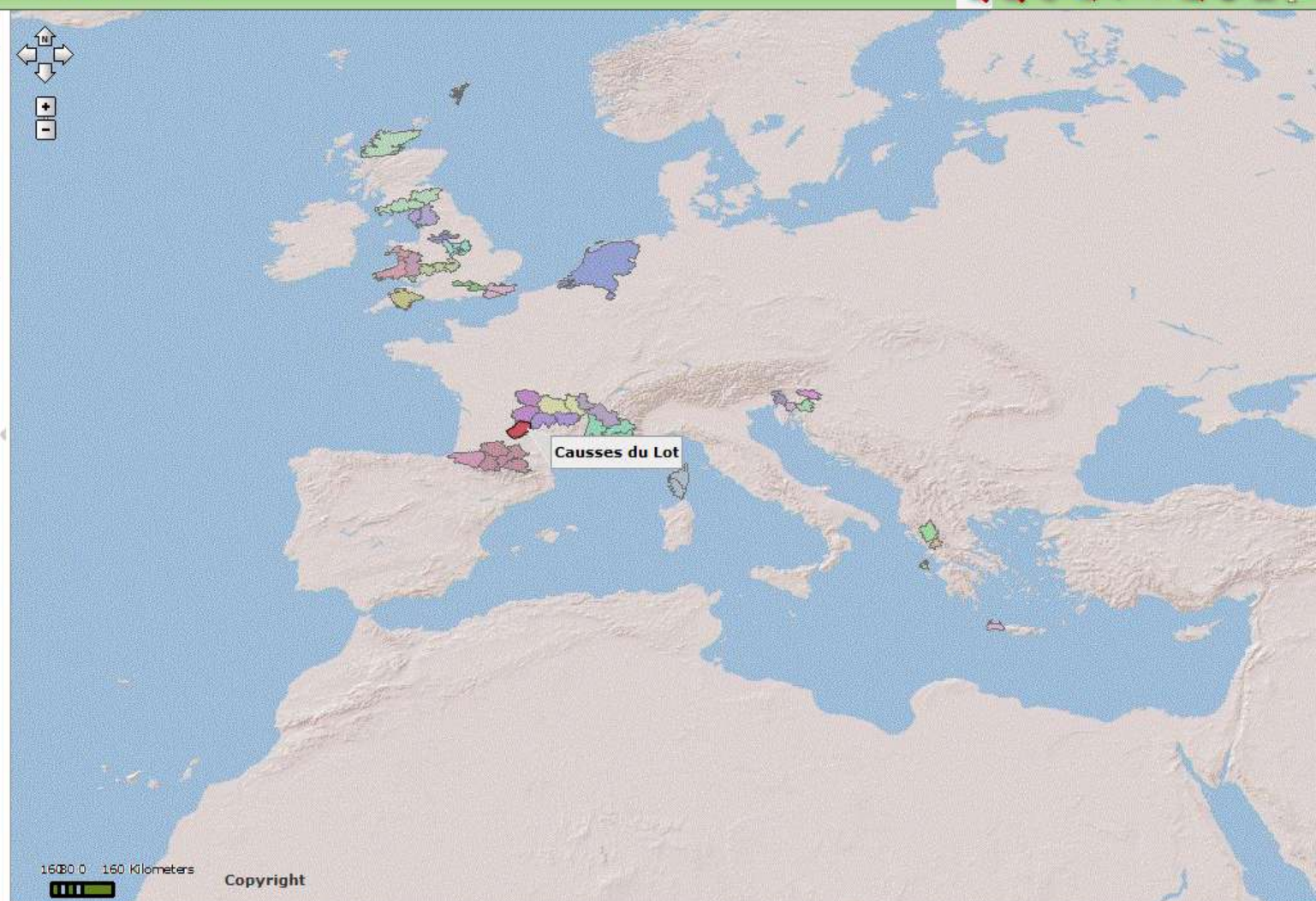
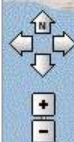
Locate Breed | Factors | Characteristics | Trends

Results

- ☒ **Locate Breed (1)**
 - ☒ BREED LOCATION (1)
 - ☒ Causses du Lot

Map Contents

- ☒ breeds
 - ☒ BREED LOCATION
 - ☒ Europe
- ☒ breeders_sheep
 - ☒ Breeders & Sheep
- ☒ factors
 - ☒ FACTORS
- ☒ values
 - ☒ Characteristics



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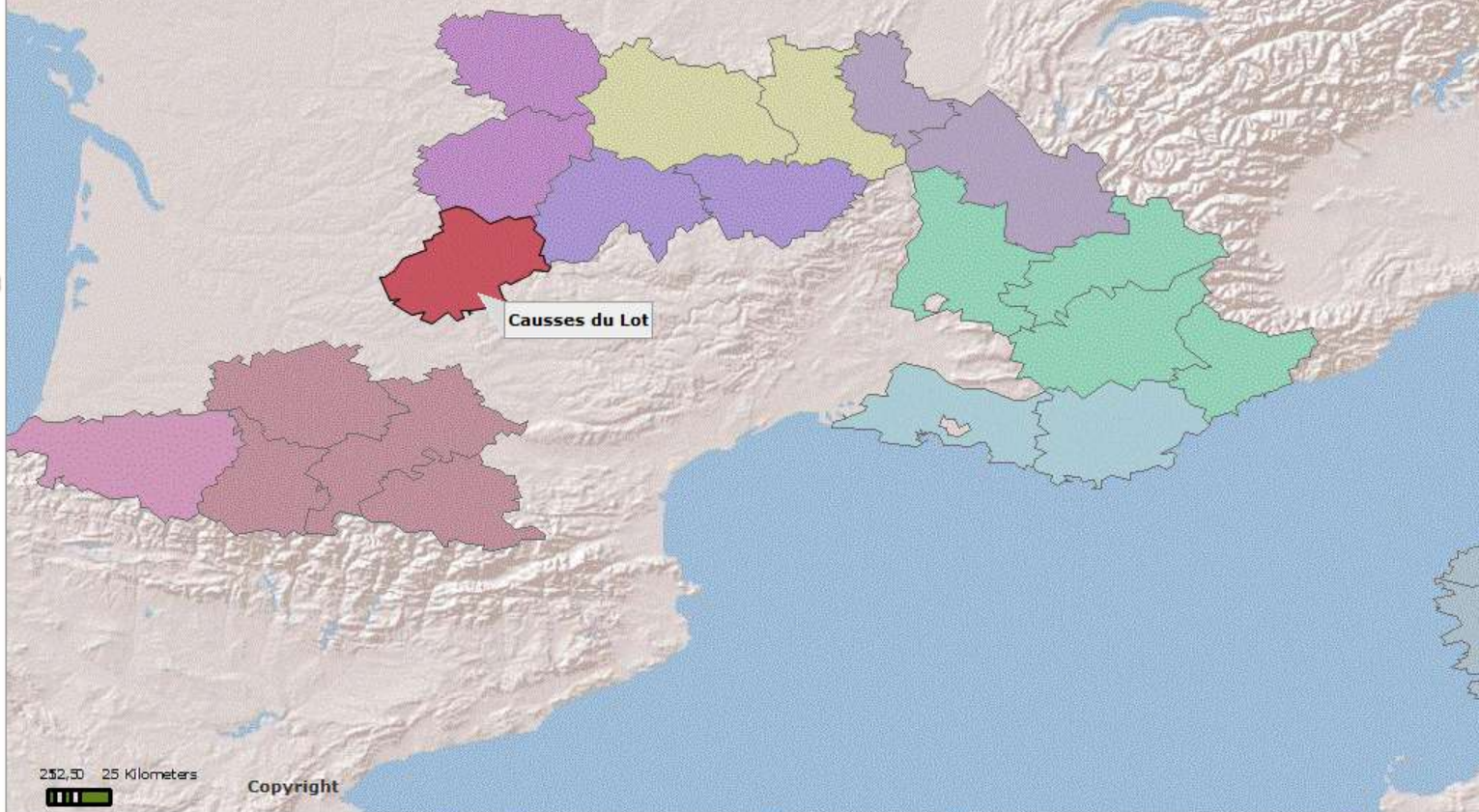
Locate Breed | Factors | Characteristics | Trends

Results

- ☒ **Locate Breed (1)**
 - ☒ BREED LOCATION (1)
 - ☒ Causses du Lot

Map Contents

- ☒ breeds
 - ☒ BREED LOCATION
 - ☒ Europe
- ☒ breeders_sheep
 - ☒ Breeders & Sheep
- ☒ factors
 - ☒ FACTORS
- ☒ values
 - ☒ Characteristics



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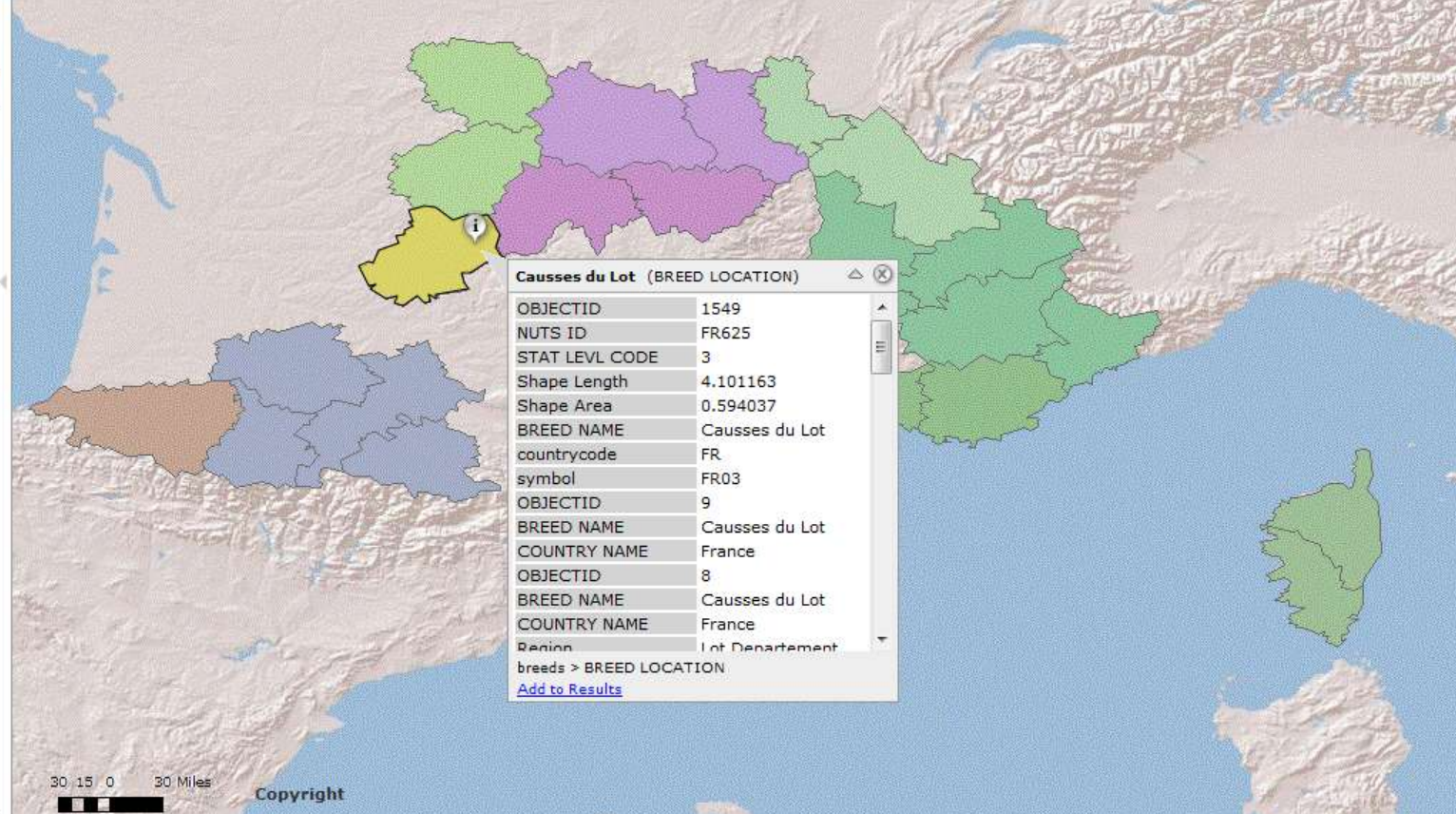
Results

[Clear All](#)

- ☒ **Locate Breed (1)**
 - ☒ BREED LOCATION (1)
 - ☒ Causses du Lot

Map Contents

- ☒ breeds
 - ☒ BREED LOCATION
 - ☒ Shaded relief
- ☒ breeders_sheep
 - ☒ Breeders & Sheep
- ☒ factors
 - ☒ FACTORS
- ☒ values
 - ☒ Characteristics

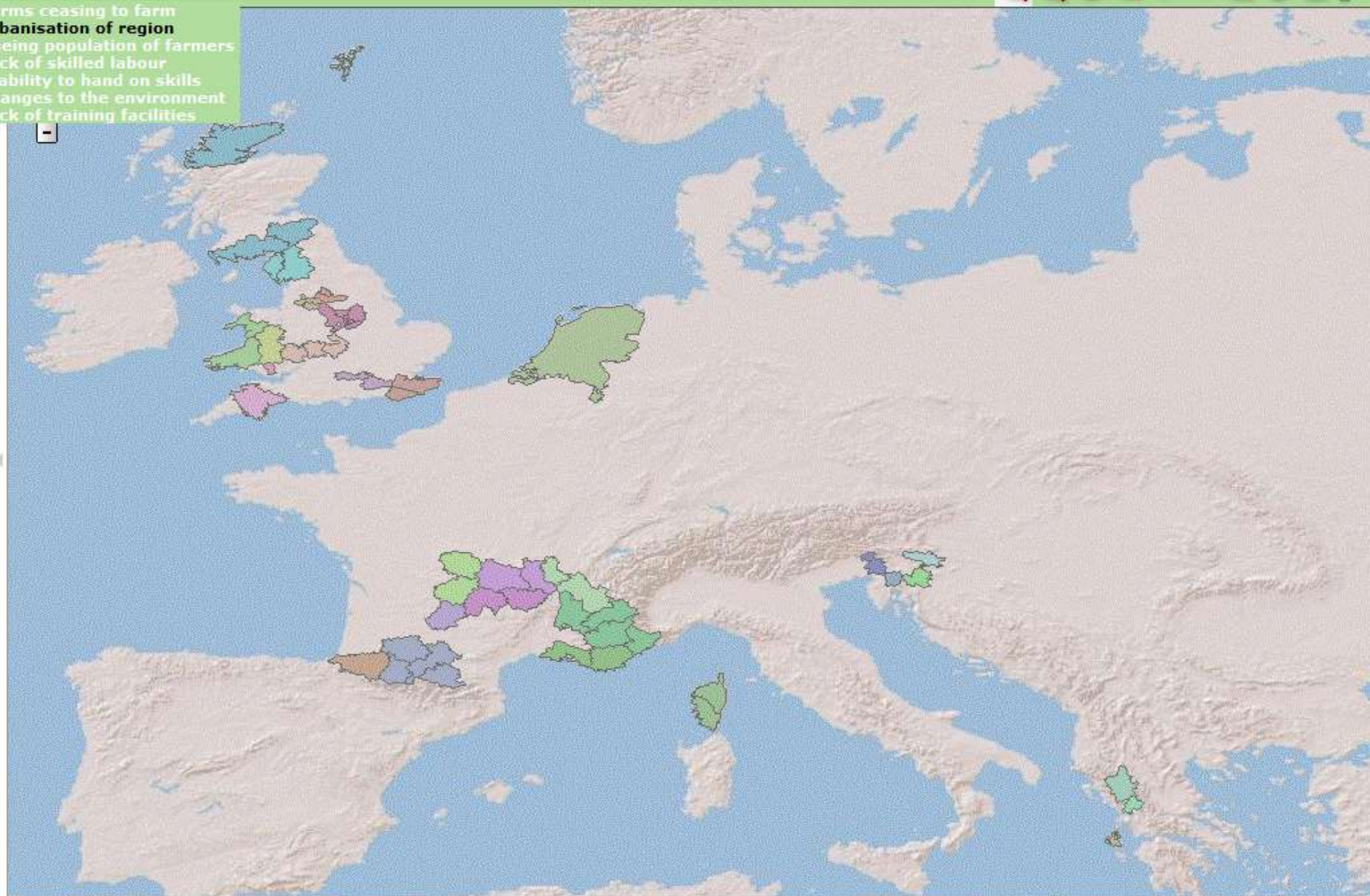


Locate Breed | Factors ▾ | Characteristics ▾ | Numbers and Trends ▾

Results

- Social ▸ Farms ceasing to farm
Urbanisation of region
- Environmental ▸ Ageing population of farmers
- Political ▸ Lack of skilled labour
- Diseases ▸ Inability to hand on skills
- Changes to the environment
- Lack of training facilities

Map Contents ▾



110 55 0 110 Miles

Copyright



HERITAGE SHEEP

France, Greece, Netherlands, Slovenia, UK

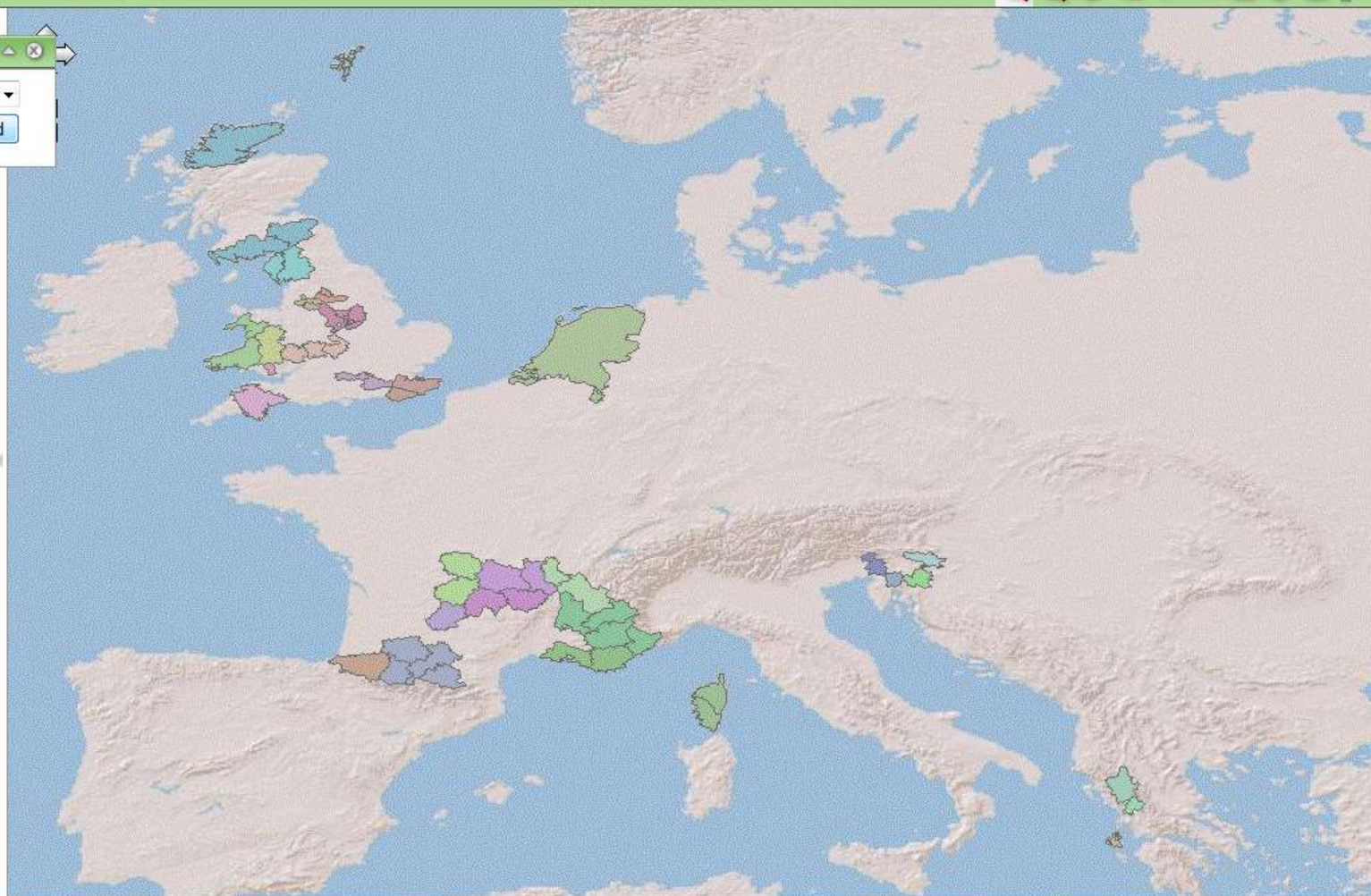
Results

Urbanisation of region

Urbanisation of region 5 ▾

Find

Map Contents



110 55 0 110 Miles

Copyright



Results

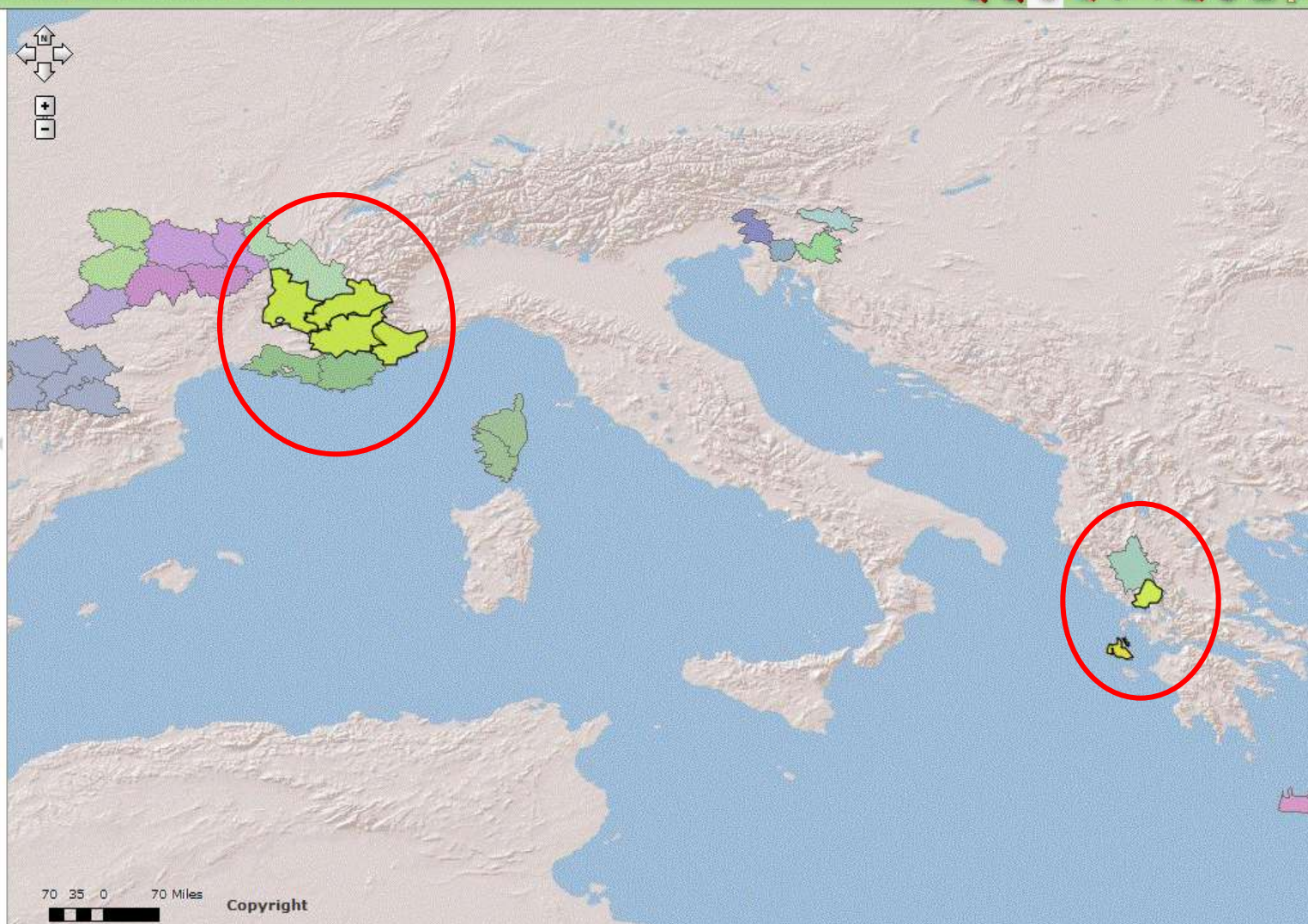
[Clear All](#)

Urbanisation of region (6)

- ☒ FACTORS (6)
 - ☒ Frizarta
 - ☒ Kefallinias
 - ☒ Mourerous
 - ☒ Mourerous

Map Contents

- ☒ breeds
 - ☒ BREED LOCATION
 - ☒ Shaded relief
- ☒ breeders_sheep
 - ☒ Breeders & Sheep
- ☒ factors
 - ☒ FACTORS
- ☒ values
 - ☒ Characteristics



Results

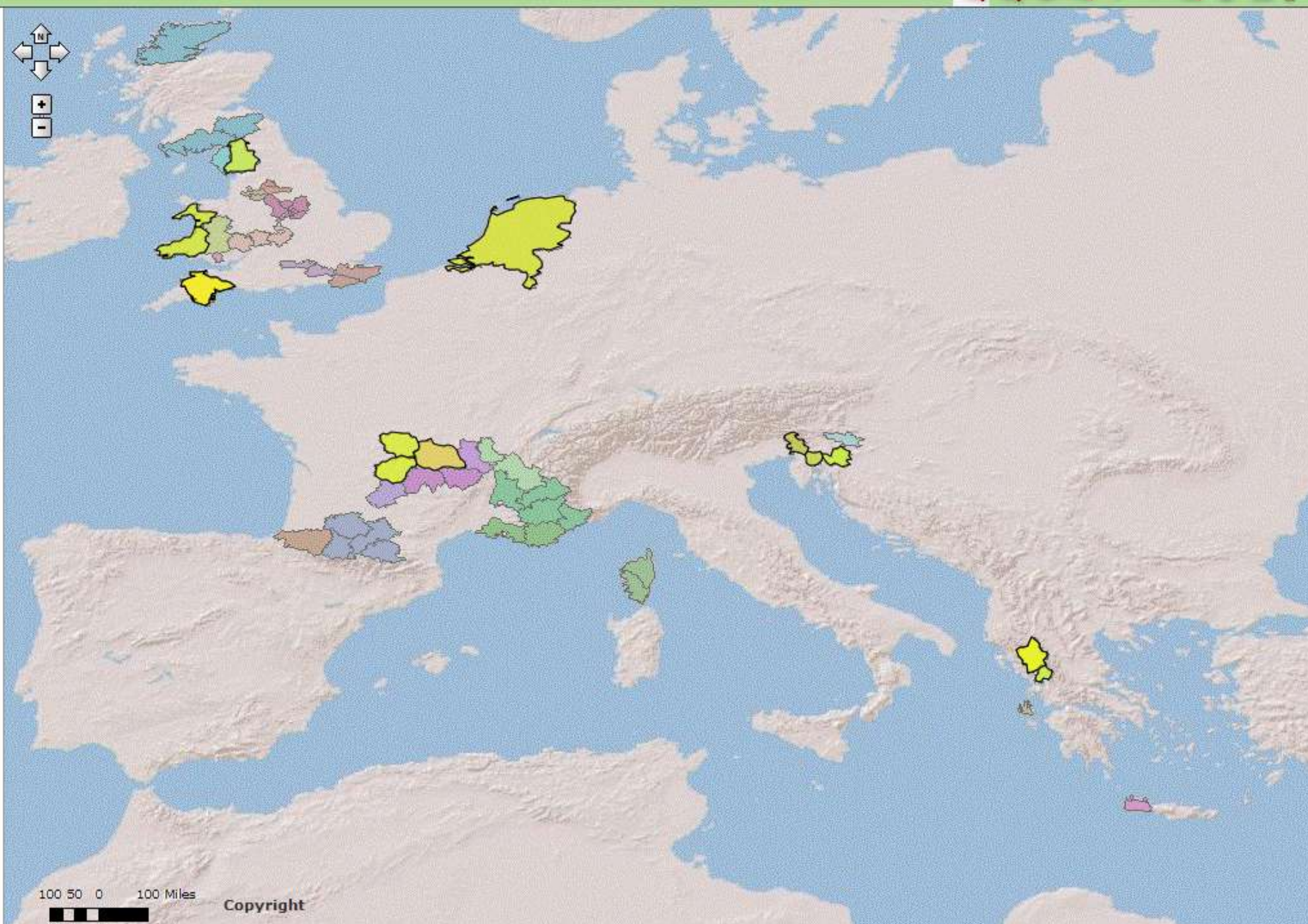
[Clear All](#)

☒ Ageing population of farmers

☒ FACTORS (19)

- ☒ Rough Fell
- ☒ Welsh Hill Speckled
- ☒ Welsh Hill Speckled
- ☒ Devon Closewool
- ☒ Devon Closewool
- ☒ Limousine
- ☒ Bovec Sheep
- ☒ Limousine
- ☒ Bela Krajina Pramenka
- ☒ Istrian Pramenka

Map Contents



Locate Breed | Factors | Characteristics | Trends

Results

Social
Environmental
Political
Disease Threats

Removal of headage payments
Environmental scheme changes
Need to increase farm productivity
Need to make management easier
Non farming uses of land
Decreasing the area of actively farmed land
Decreasing farm labour
Decreasing the use of inputs
Going organic
Diversification into non farming enterprises on the farm
Ceasing farming altogether

Map Contents

- ☒ breeds
 - ☒ BREED LOCATION
 - ☒ Europe
- ☒ breeders_sheep
 - ☒ Breeders & Sheep
- ☒ factors
 - ☒ FACTORS
- ☒ values
 - ☒ Characteristics

10000 100 Kilometers

Copyright

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Locate Breed | Factors | Characteristics | Trends



Results

⊕ Milk (12)

Non farming uses of land

Non farming uses of land 1

- 1
- 2
- 3
- 4
- 5

Map Contents

12050.0 120 Kilometers



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Locate Breed | Factors | Characteristics | Trends



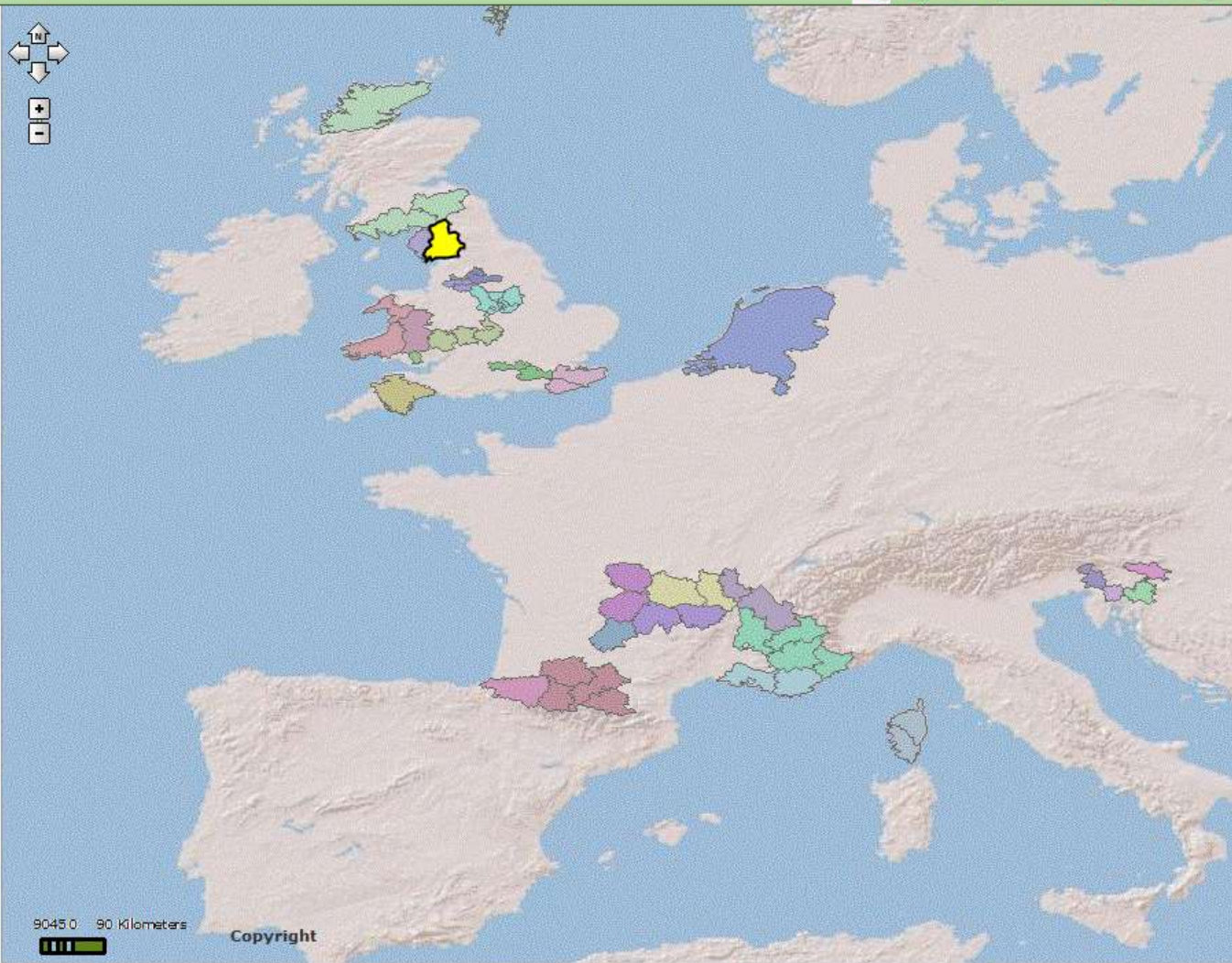
Results

☒ Non farming uses of land (1)

☒ FACTORS (1)

☒ Rough Fell

Map Contents



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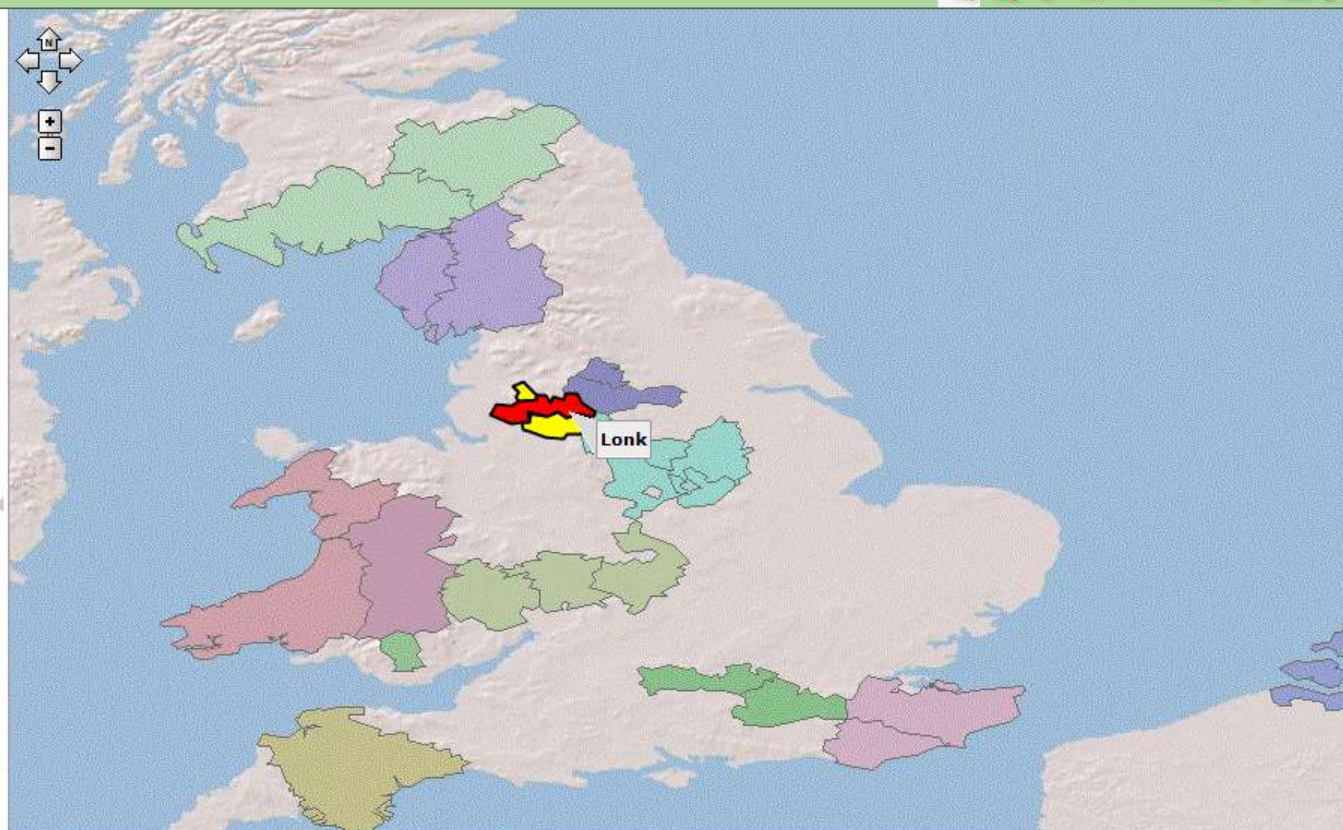


Locate Breed | Factors ▾ | Characteristics ▾ | Trends ▾

Results

[Clear All](#)☒ Non farming uses of land (3)☒ FACTORS (3)☒ Lonk☒ Lonk☒ Lonk☐ Non farming uses of land (1)

Map Contents



3015 0 30 Kilometers

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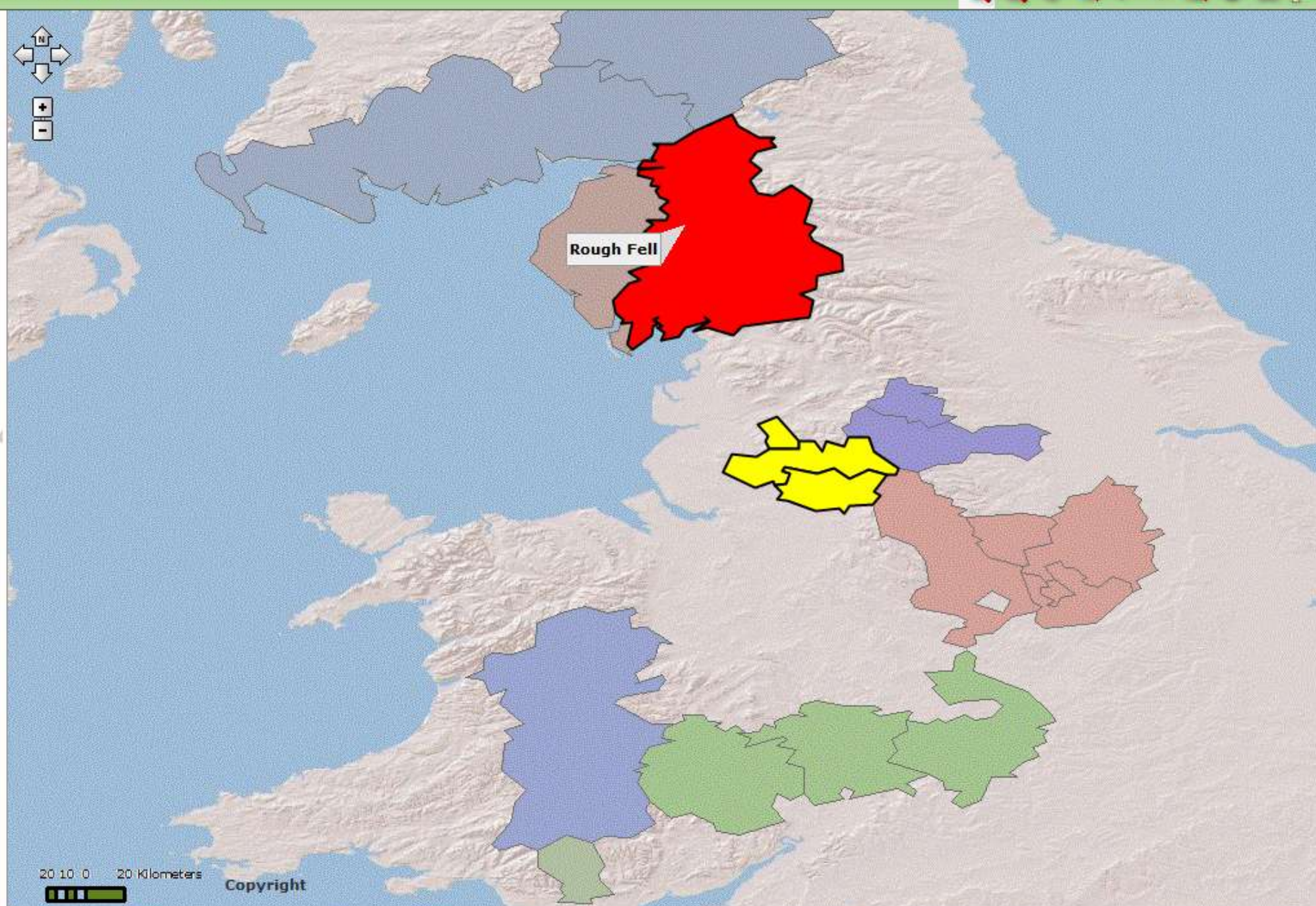


Locate Breed | Factors | Characteristics | Trends

Results

[Clear All](#)☒ Non farming uses of land (1)☒ FACTORS (1)☒ Rough Fell☒ Non farming uses of land (3)☒ FACTORS (3)☒ Lonk☒ Lonk☒ Lonk

Map Contents



Done

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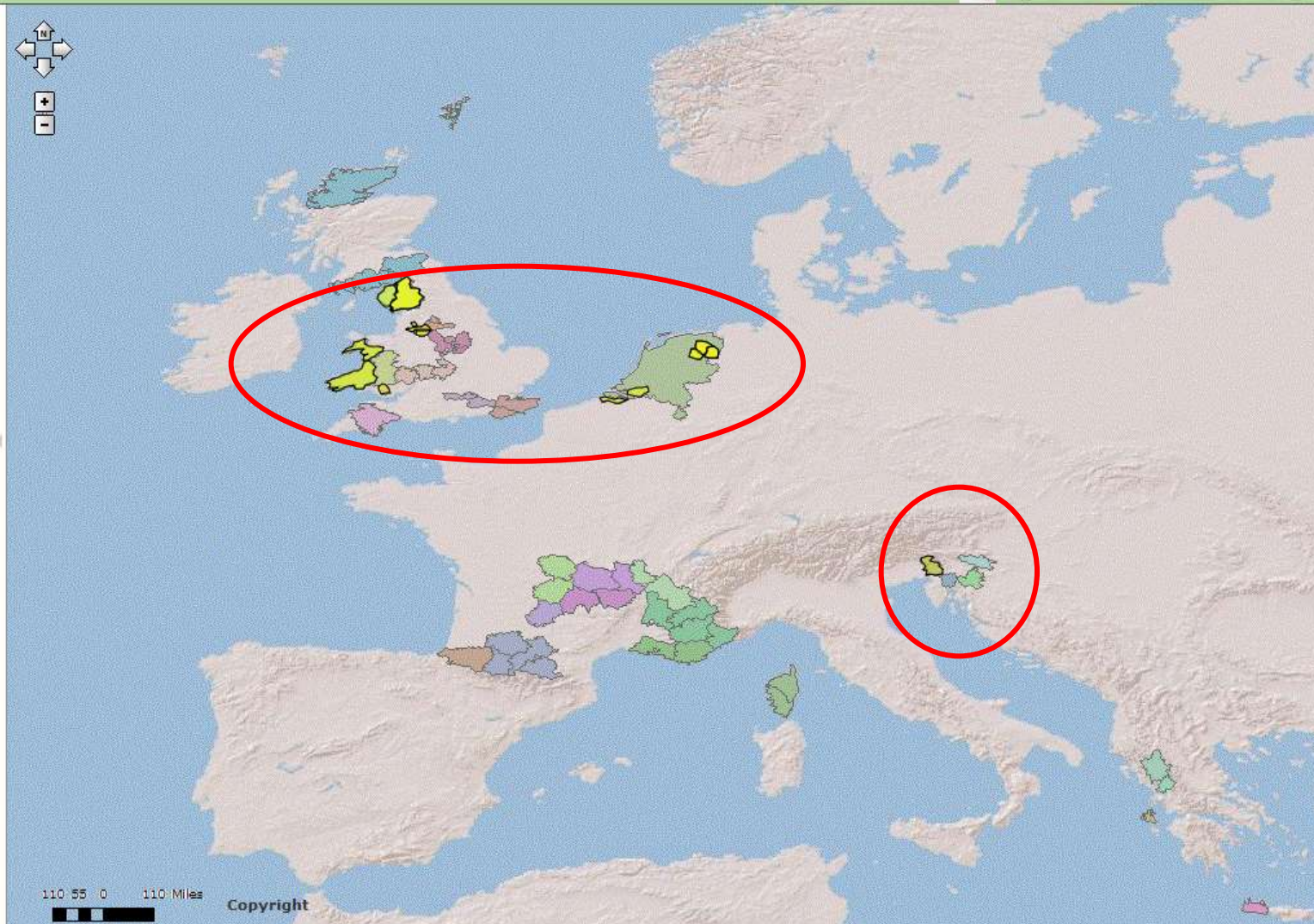
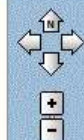
Results

[Clear All](#)
☒ Environmental scheme chang

☒ FACTORS (18)

- ☒ Rough Fell
- ☒ Herdwick
- ☒ Lonk
- ☒ Lonk
- ☒ Lonk
- ☒ Welsh Hill Speckled
- ☒ Drenth Heath
- ☒ Drenth Heath
- ☒ Drenth Heath
- ☒ Welsh Hill Speckled

Map Contents



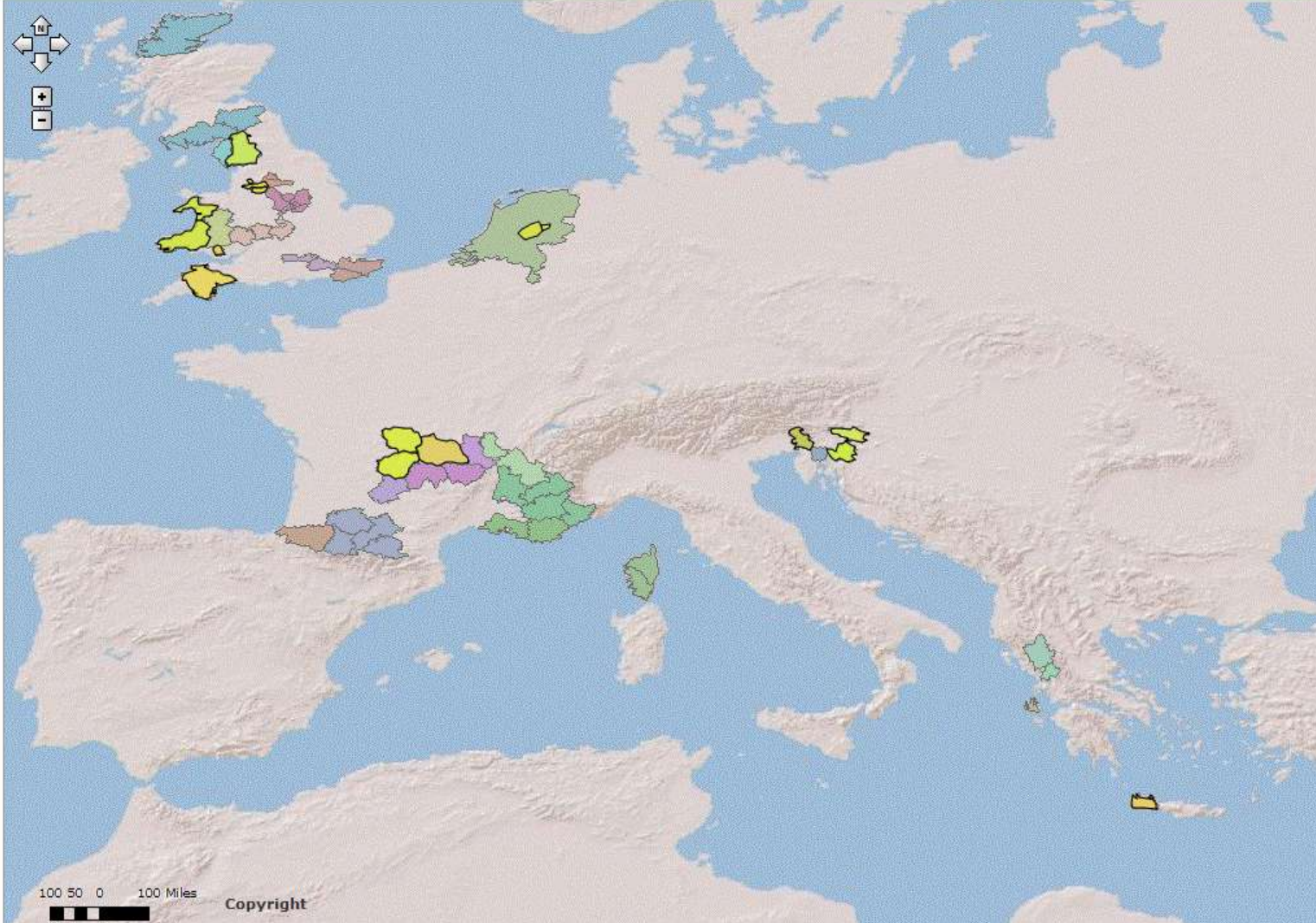
Results

[Clear All](#)
☒ Removal of headage payment

☒ FACTORS (20)

- ☒ Veluwe Heath
- ☒ Veluwe Heath
- ☒ Shetland
- ☒ Rough Fell
- ☒ Lonk
- ☒ Lonk
- ☒ Lonk
- ☒ Welsh Hill Speckled
- ☒ Welsh Hill Speckled
- ☒ South Welsh Mountz

Map Contents



Results

[Clear All](#)
☒ **Bluetongue (50)**
☒ **FACTORS (50)**

Records 1 - 25 of 50

☒ North Holland

☒ Black Blazed

☒ Black Blazed

☒ Black Blazed

☒ Blue Texel

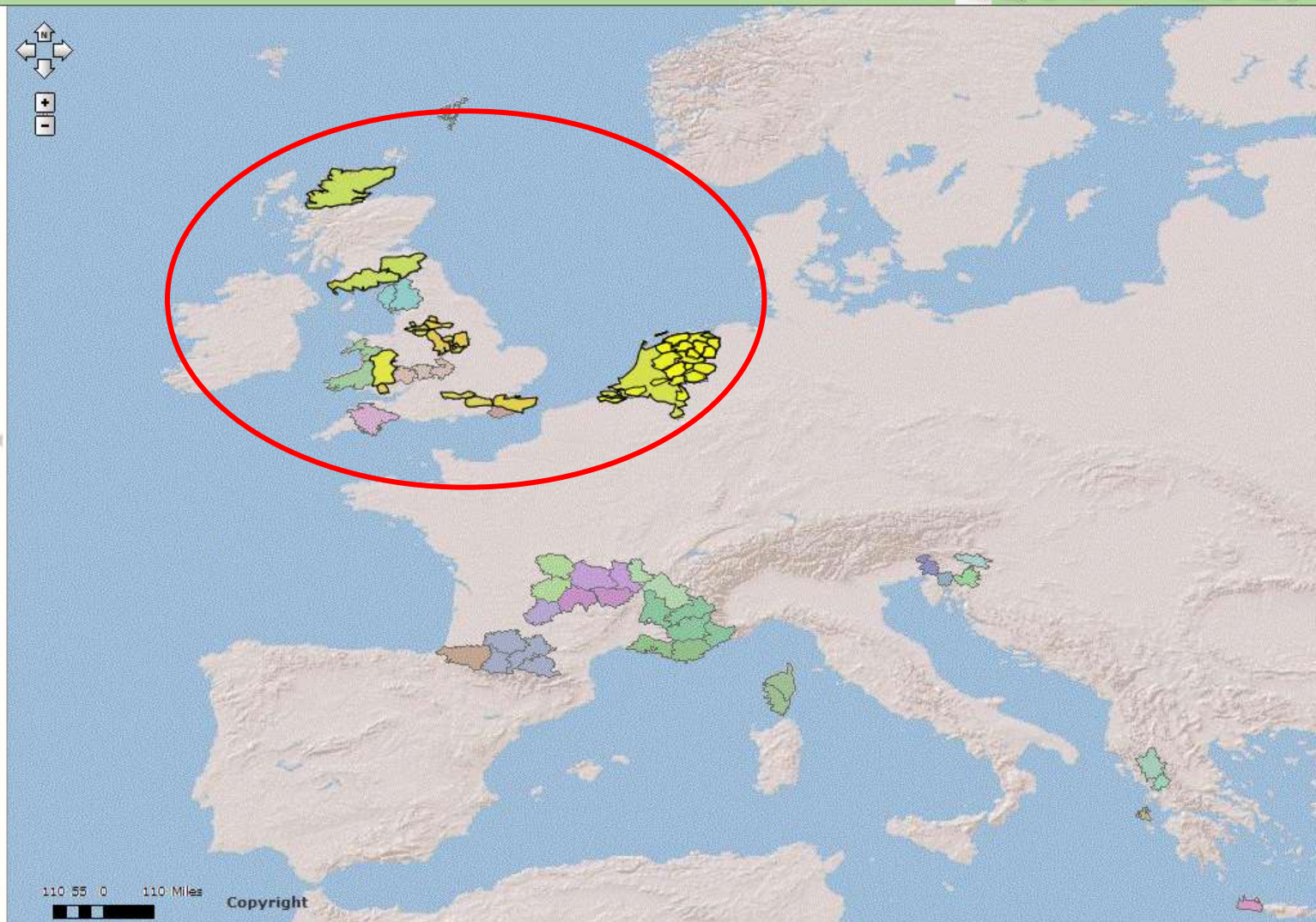
☒ Blue Texel

☒ Blue Texel

☒ Blue Texel

☒ Blue Texel

Map Contents



Locate Breed | Factors | Characteristics | Trends

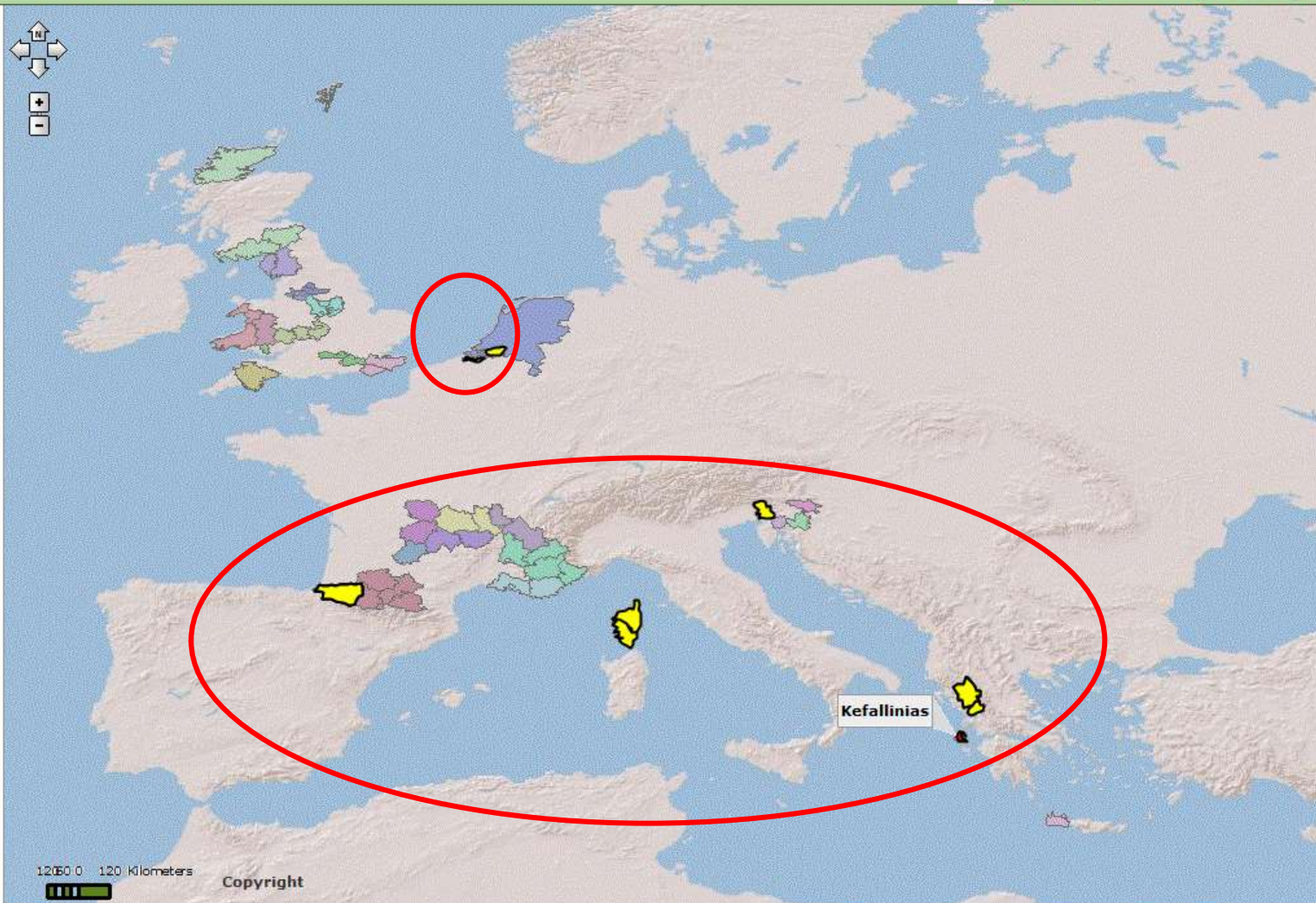
Results

Milk (12)

Characteristics (12)

- ☒ Zeeland milksheep
- ☒ Zeeland milksheep
- ☒ Bovec Sheep
- ☒ Basco Béarnaise
- ☒ Corse
- ☒ Corse
- ☒ Katsika
- ☒ Frizarta
- ☒ Kefallinias
- ☒ Boutsiko (Orino)
- ☒ Manech Tête Noire
- ☒ Manech Tête Rousse

Map Contents



Done

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Locate Breed | Factors | Characteristics | Trends

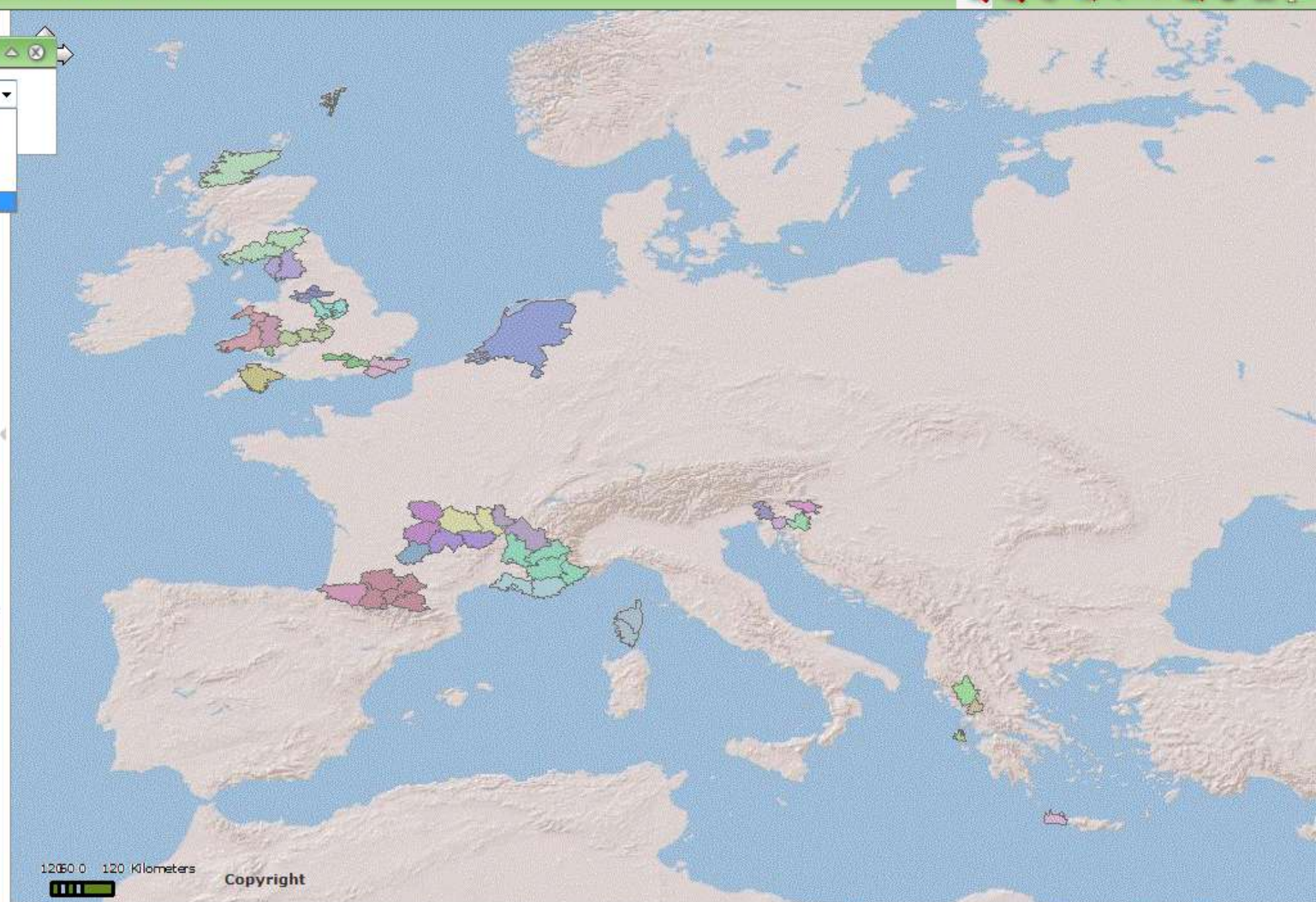
Results

Adaptation to altitude

Adaptation to altitude 5

- 1
- 2
- 3
- 4
- 5

Map Contents



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Locate Breed | Factors | Characteristics | Trends



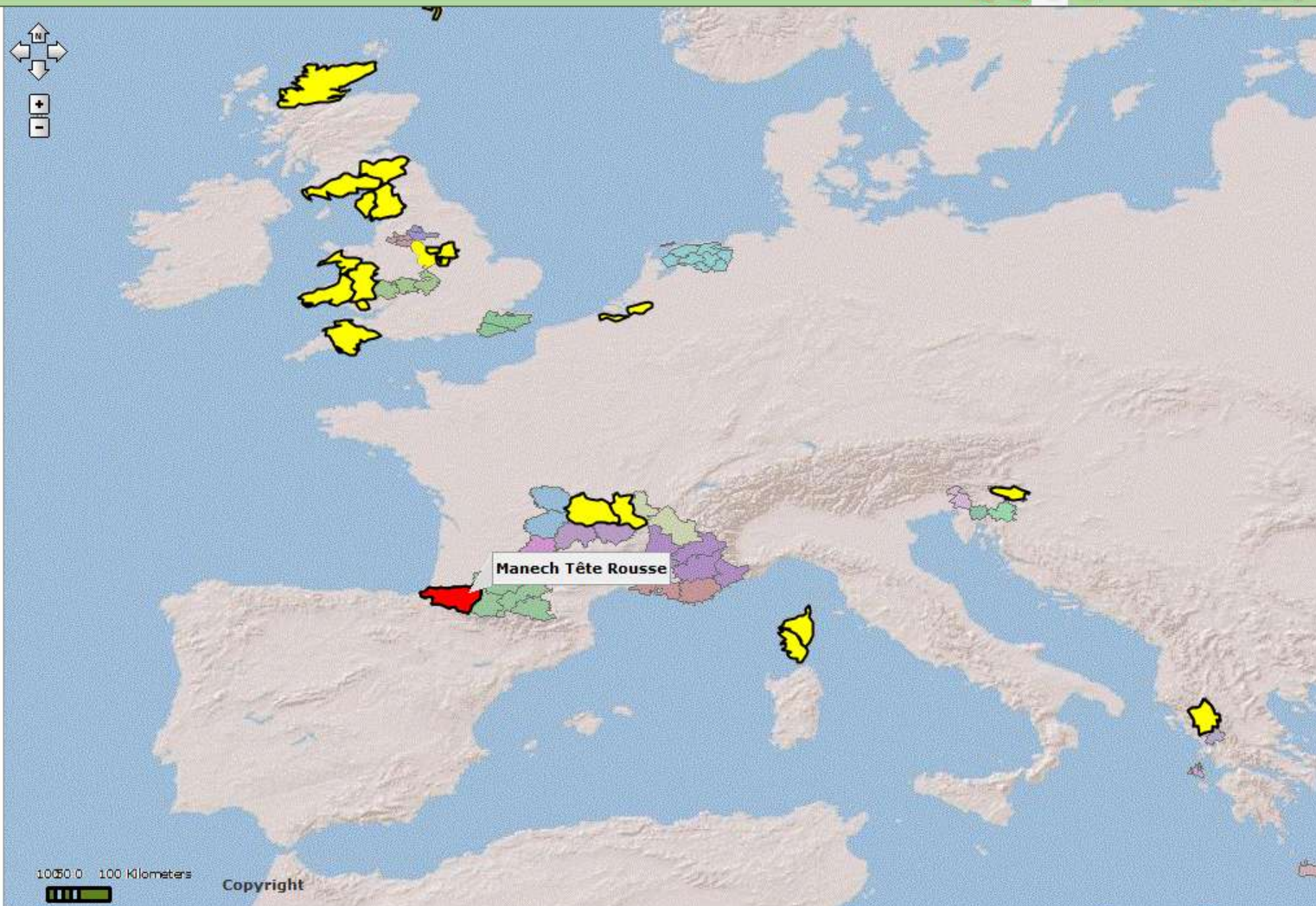
Results

☒ Adaptation to altitude (31)☒ Characteristics (31)

Records 1 - 25 of 31

- ☒ Shetland
- ☒ Cheviot
- ☒ Cheviot
- ☒ Cheviot
- ☒ Rough Fell
- ☒ Herdwick
- ☒ Derbyshire Gritston
- ☒ Derbyshire Gritston
- ☒ Derbyshire Gritston
- ☒ Welsh Hill Speckled
- ☒ Derbyshire Gritston
- ☒ Derbyshire Gritston
- ☒ Brecknock Hill Chev
- ☒ Welsh Hill Speckled
- ☒ South Welsh Mount

Map Contents



Done

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- Ease of management
- High demand for products
- Good return on products
- Adaptation to environment
- Tourism
- Breed related activities
- Regional product

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Locate Breed | Factors | Characteristics | Trends

Results

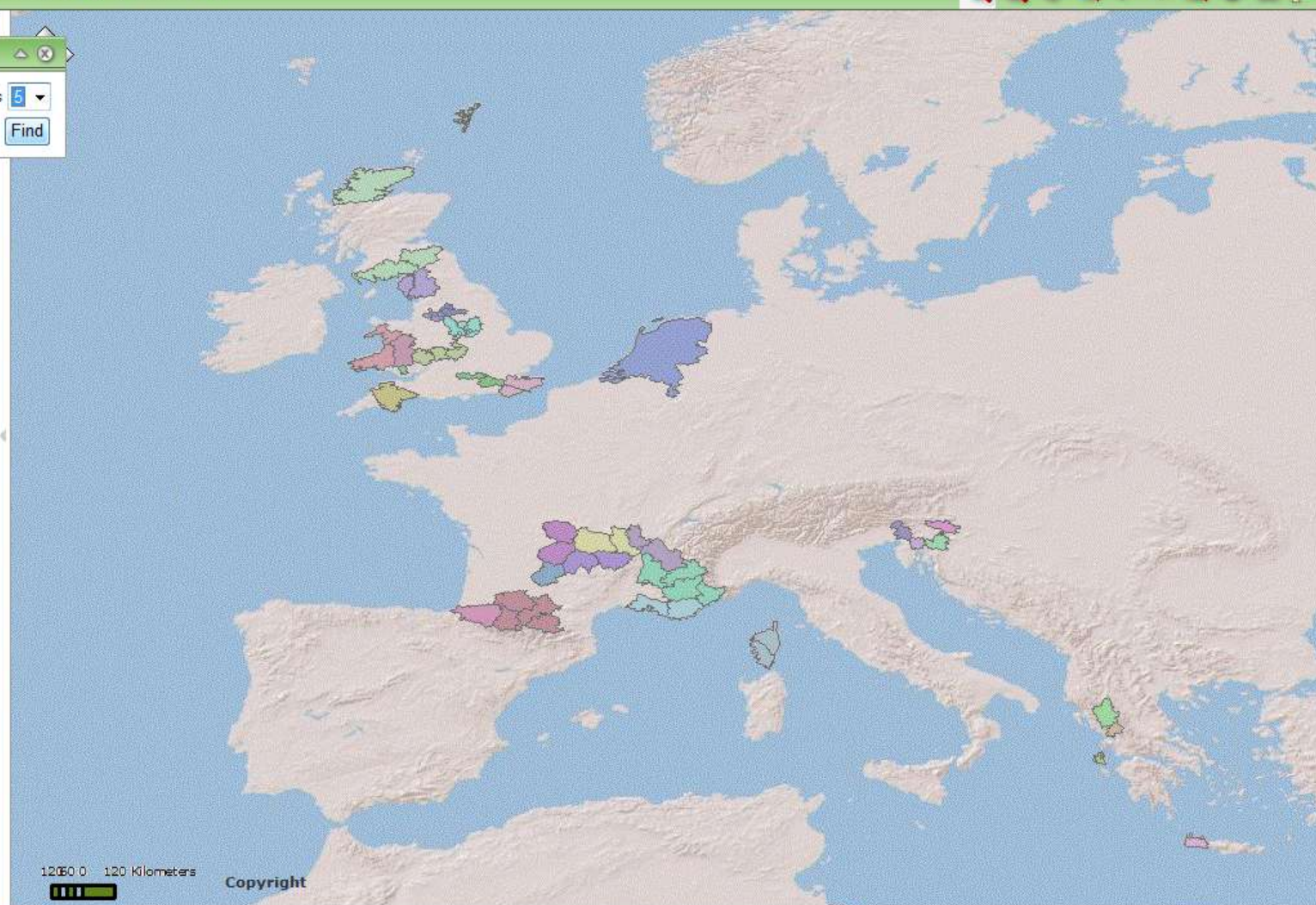
Map Contents

- ☒ breeds
 - ☒ BREEDS
 - ☒ European
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 - ☒ Breeders & Sheep
- ☒ factors
 - ☒ FACTORS
- ☒ values
 - ☒ Characteristics

High demand for products

High demand for products

Find



Done

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Locate Breed | Factors | Characteristics | Trends



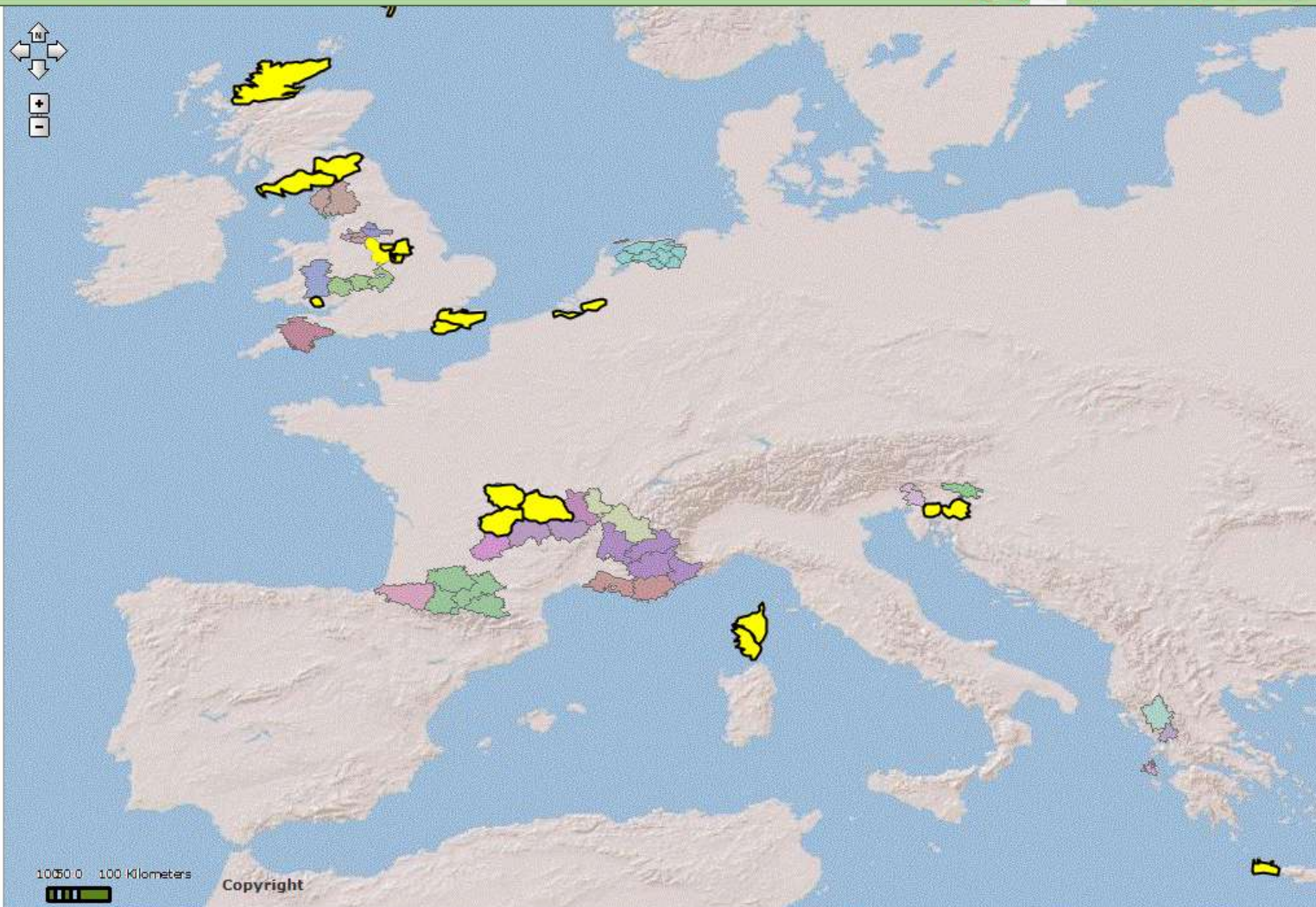
Results

☒ High demand for products (22)

☒ Characteristics (22)

- ☒ Shetland
- ☒ Cheviot
- ☒ Cheviot
- ☒ Cheviot
- ☒ Derbyshire Gritston
- ☒ Derbyshire Gritston
- ☒ Derbyshire Gritston
- ☒ Derbyshire Gritston
- ☒ Derbyshire Gritston
- ☒ South Welsh Mountaineering
- ☒ Zeeland milksheep
- ☒ Romney
- ☒ Zeeland milksheep
- ☒ Romney
- ☒ Limousine

Map Contents



Done

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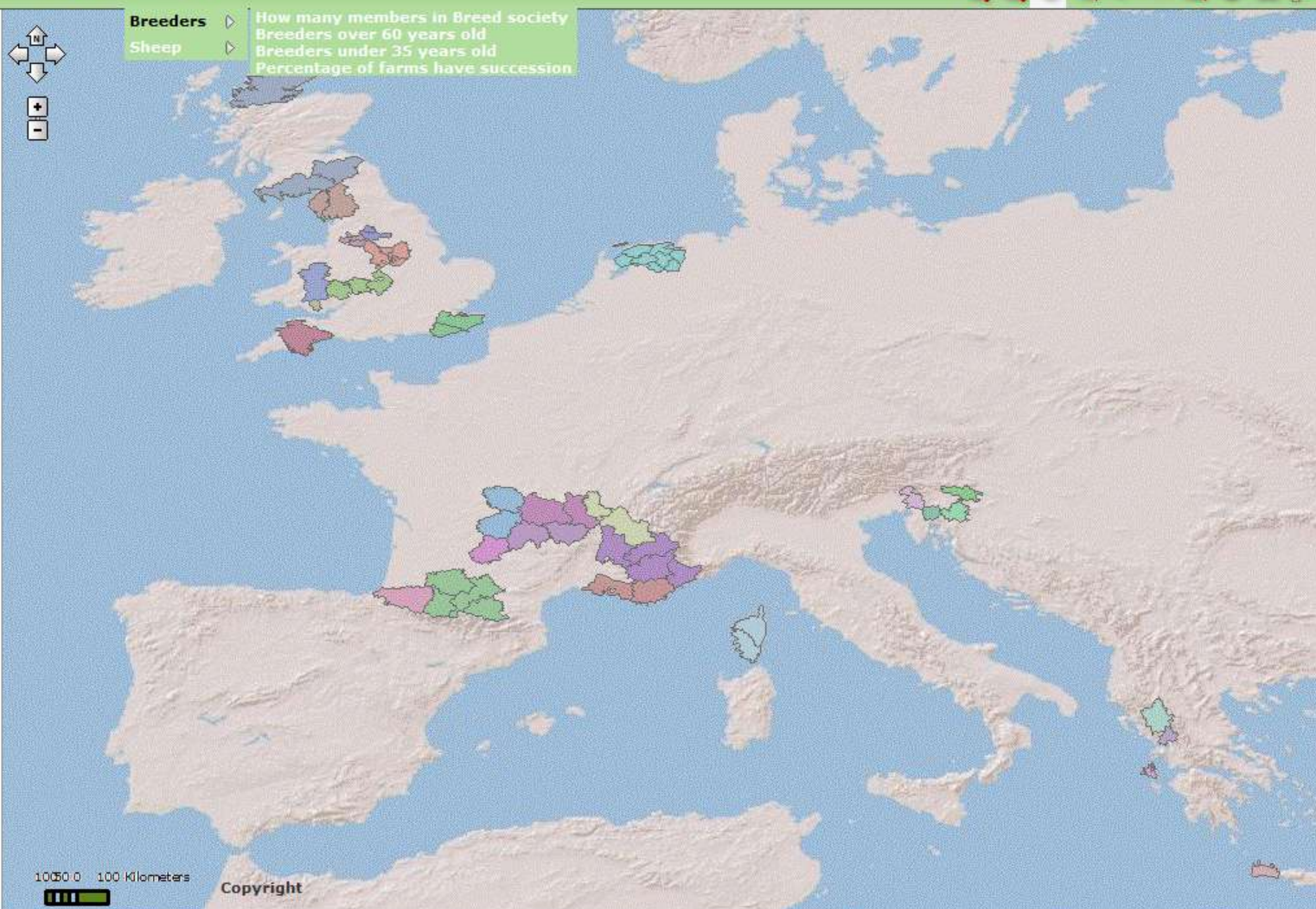


Locate Breed | Factors | Characteristics | Trends



Results

Map Contents



Done

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Locate Breed | Factors | Characteristics | Trends

Results

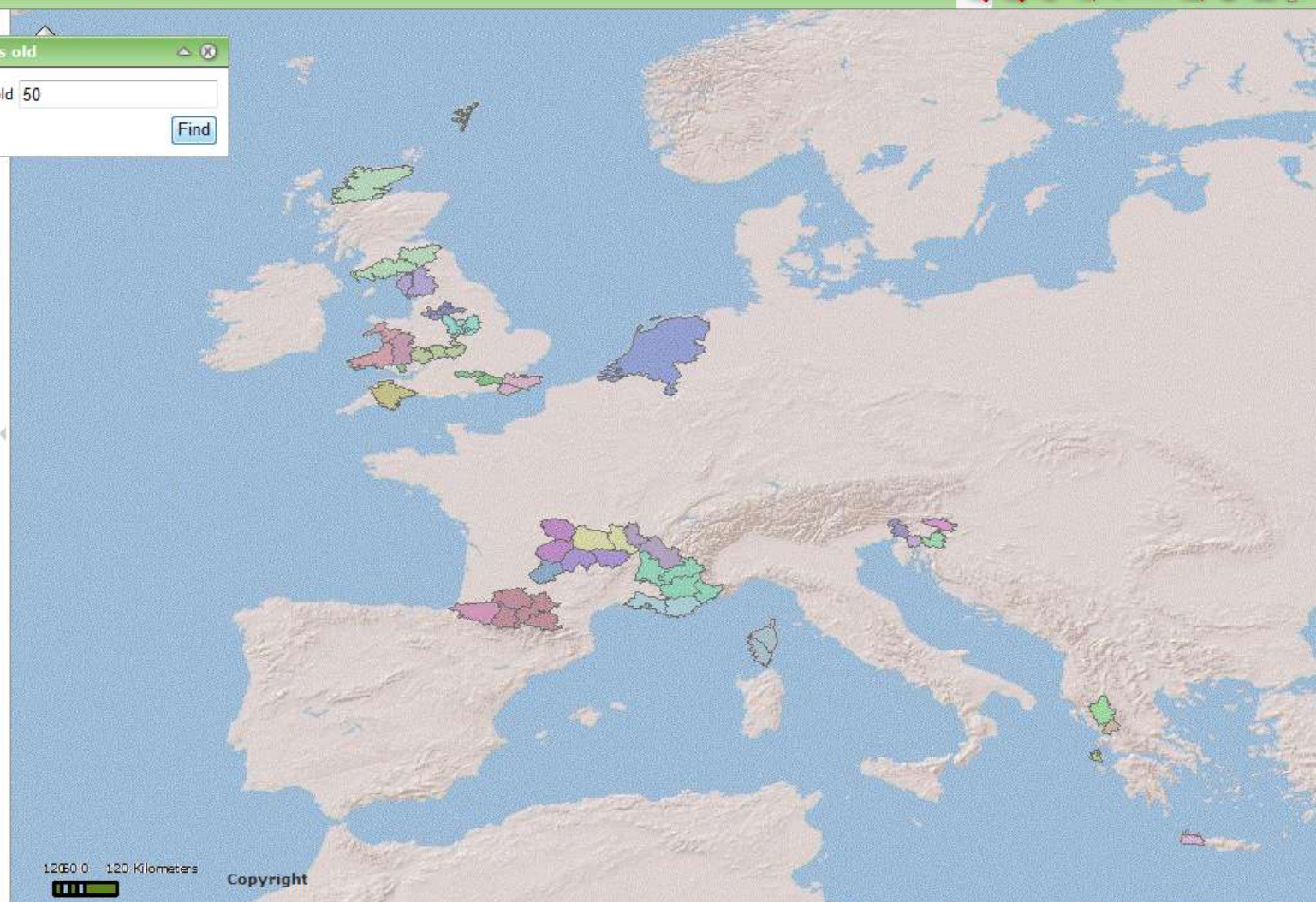
Breeders over 60 years old

Breeders over 60 years old 50

Find

Map Contents

- ☒ breeds
 - ☒ BREED LOCATION
 - ☒ Europe
- ☒ breeders_sheep
 - ☒ Breeders & Sheep
- ☒ factors
 - ☒ FACTORS
- ☒ values
 - ☒ Characteristics



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Locate Breed | Factors | Characteristics | Trends

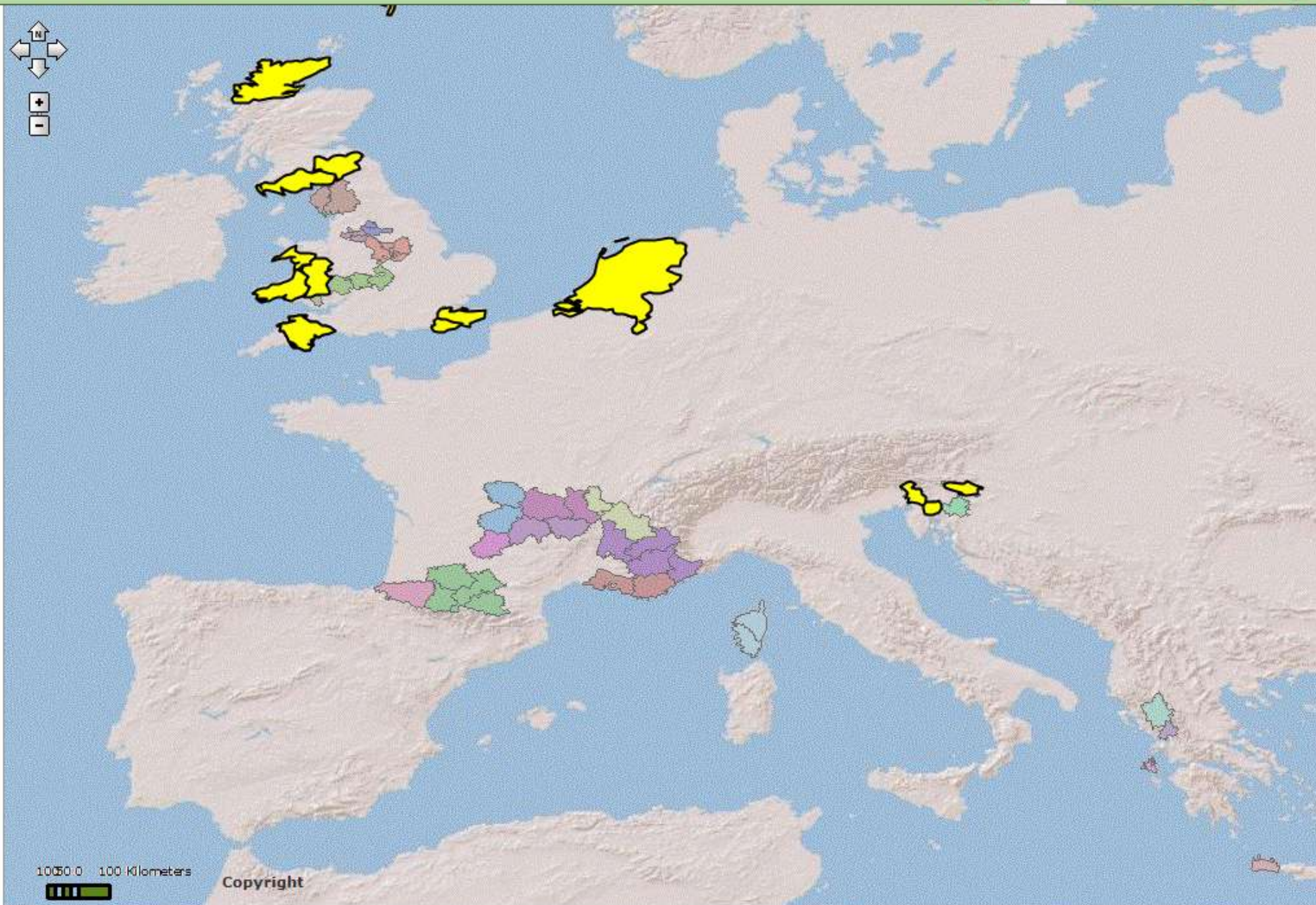


Results

☒ Breeders over 60 years old (22)

- ☒ Breeders & Sheep (22)
 - ☒ Shetland
 - ☒ Cheviot
 - ☒ Cheviot
 - ☒ Cheviot
 - ☒ Welsh Hill Speckled
 - ☒ Brecknock Hill Cheviot
 - ☒ Welsh Hill Speckled
 - ☒ Mergelland
 - ☒ Romney
 - ☒ Mergelland
 - ☒ Romney
 - ☒ Mergelland
 - ☒ Devon Closewool
 - ☒ Devon Closewool
 - ☒ Jezersko - Solcava

Map Contents



Done

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Locate Breed | Factors ▾ | Characteristics ▾ | Trends ▾



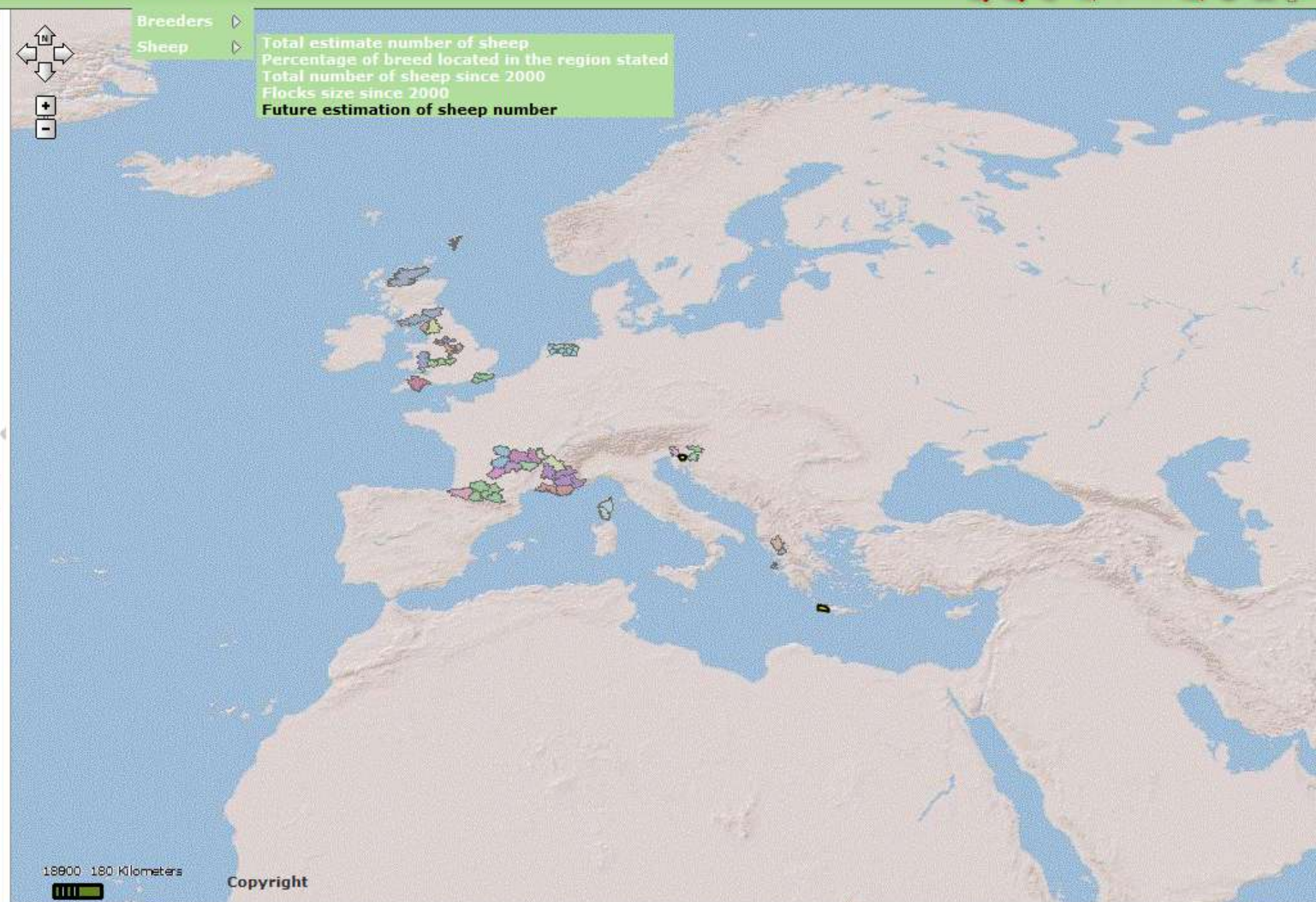
Results

Map Contents



Breeders ▾
Sheep ▾

Total estimate number of sheep
Percentage of breed located in the region stated
Total number of sheep since 2000
Flocks size since 2000
Future estimation of sheep number



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Locate Breed | Factors | Characteristics | Trends

Results

Future estimation of sheep number

Future estimation of sheep number decrease

Find

Map Contents

- ☒ breeds
 - ☒ BREED LOCATION
 - ☒ Europe
- ☒ breeders_sheep
 - ☒ Breeders & Sheep
- ☒ factors
 - ☒ FACTORS
- ☒ values
 - ☒ Characteristics

12000 0 120 Kilometers

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Done

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Locate Breed | Factors | Characteristics | Trends

Results

☒ Future estimation of sheep nu

☒ Breeders & Sheep (45)

Records 1 - 25 of 45

☒ North Holland

☒ Shetland

☒ Herdwick

☒ Lonk

☒ Lonk

☒ Lonk

☒ Derbyshire Gritston

☒ Derbyshire Gritston

☒ Derbyshire Gritston

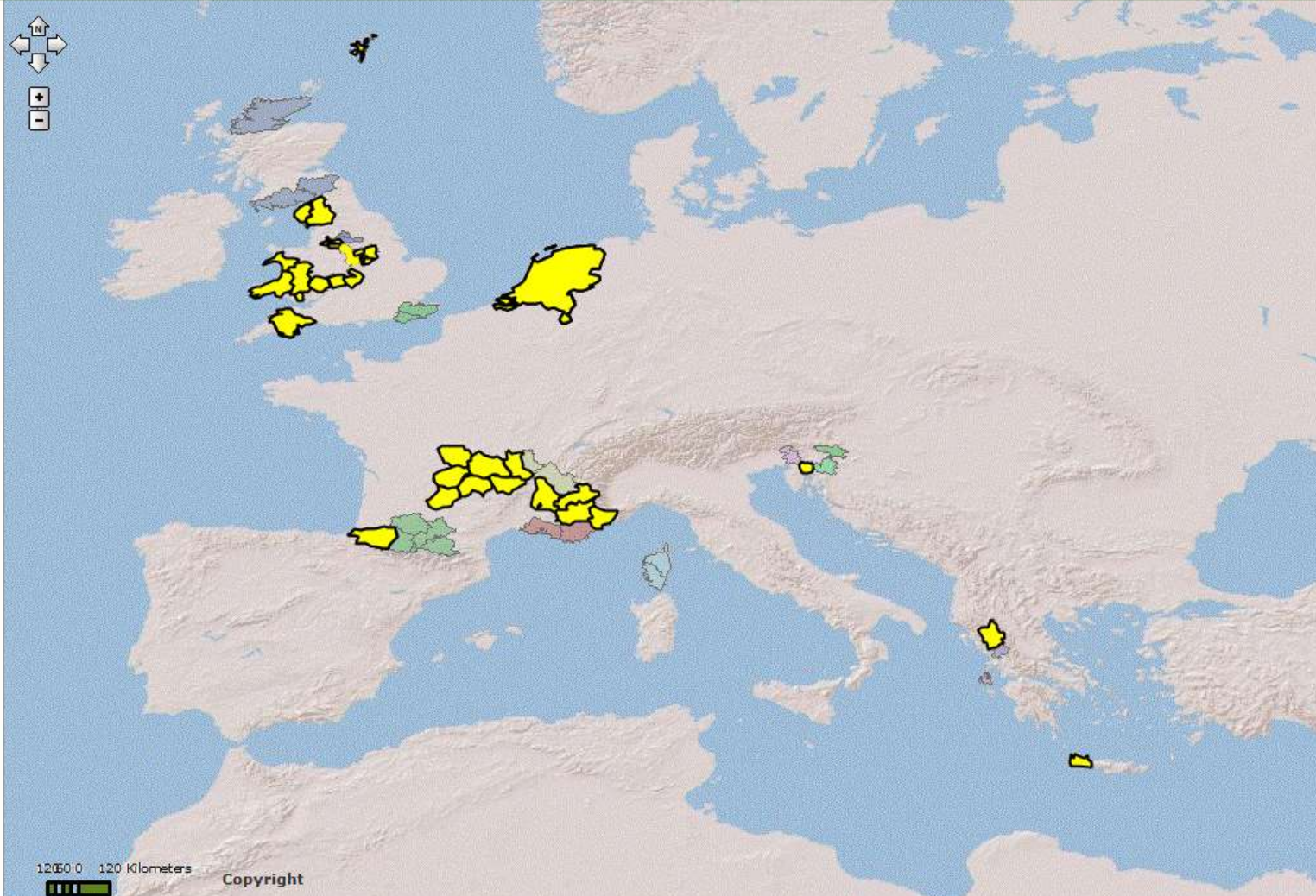
☒ Welsh Hill Speckled

☒ Derbyshire Gritston

☒ Derbyshire Gritston

☒ Brecknock Hill Chev

Map Contents



Done

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Locate Breed | Factors | Characteristics | Trends

Results

Map Contents

Breeder's
Sheep

Total estimate number of sheep
Percentage of breed located in the region stated
Total number of sheep since 2000
Flocks size since 2000
Future estimation of sheep number

130550 130 Kilometers

Copyright

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Locate Breed | Factors | Characteristics | Trends

Results

Percentage of breed located in the region stated

Percentage of breed located in the region stated 75

Find

Map Contents

130550 130 Kilometers

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Locate Breed | Factors | Characteristics | Trends

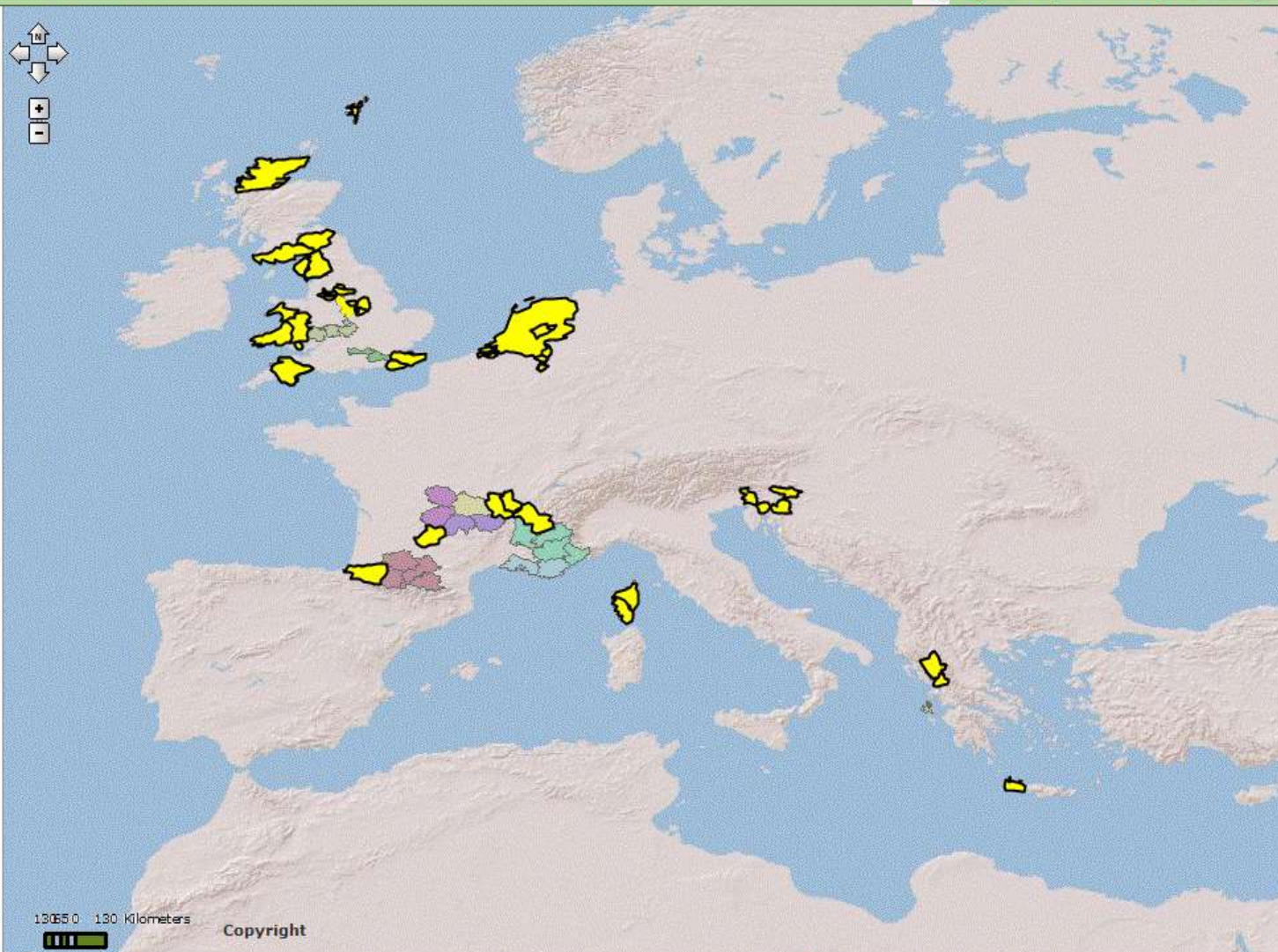
Results

☒ Percentage of breed located in the re☒ Breeders & Sheep (50)

Records 1 - 25 of 50

- ☒ North Holland
- ☒ Veluwe Heath
- ☒ Veluwe Heath
- ☒ Shetland
- ☒ Cheviot
- ☒ Cheviot
- ☒ Cheviot
- ☒ Rough Fell
- ☒ Herdwick
- ☒ Dalesbred
- ☒ Dalesbred
- ☒ Lonk
- ☒ Lonk
- ☒ Lonk
- ☒ Derbyshire Gritstone
- ☒ Derbyshire Gritstone
- ☒ Derbyshire Gritstone
- ☒ Welsh Hill Speckled
- ☒ Derbyshire Gritstone
- ☒ Derbyshire Gritstone
- ☒ Brecknock Hill Cheviot

Map Contents



Done

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Further developments

- Include in the database
 - population data / location across years
 - environmental data / social etc from the relevant databases
- Review and update the information collected
- Develop an index for the assessment of the current status and the trends
- Include more countries / breeds



HERITAGE SHEEP

France, Greece, Netherlands, Slovenia, UK

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[Partners](#)
[Coordinator](#)
[External Evaluators](#)
[Work Packages](#)
[Project Meetings](#)
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[Breeds](#)
[Links](#)
[Heritage sheep data base](#)

HERITAGE SHEEP

A international programme funded by the European Commission to conserve the genetic resources of Heritage Sheep Breeds



Heritage Sheep Breeds are regional breeds - playing an important role in local culture and the rural economy adapted to their environments - helping to sustain the countryside - have important genetic resources - biodiversity needing protection.



Action: Heritage Sheep: AQRI (GEN RES 040 receives financial support from the European Commission, Genetic Resources in Agriculture, under European Commission Council Regulation (EC) No. 870/2004 AQRI GEN RES 006 HERITAGE SHEEP

Thank you for your attention!

