

Gow's Typology of Scotland's Islands: Technical notes

Kirsten Gow^{1,2} with Margaret Currie¹, Paula M. Duffy², Ruth Wilson¹, and Lorna J. Philip²

November 2023



Fishing boat at the wee pier, Jura. K Gow

¹ James Hutton Institute, Aberdeen

² University of Aberdeen

This research is supported by the Macaulay Development Trust



Gow's Typology of Scotland's Islands: Technical notes © 2023 by Kirsten Gow, Margaret Currie, Paula M. Duffy, Ruth Wilson, Lorna J. Philip is licensed under Attribution-ShareAlike 4.0 International. To view a copy of this license, visit <http://creativecommons.org/licenses/by-sa/4.0/>

Gow's Typology of Scotland's Islands: Technical notes

Contents

1	Background	3
2	Purpose of this technical note.....	3
3	Baseline data and exclusions.....	3
4	Islands included in the typology	5
5	Factors and dimensions	6
5.1	Population.....	6
5.2	Local amenities	7
5.3	Logistical connectivity	9
5.4	Final scoring	13
6	Classification of island types	13
6.1	Map of island types.....	14
	Appendix 1 : Islands excluded at each stage	15
	End notes	17
	Further information.....	17

1 Background

While classifications of Scotland's islands already exist, these are often based on geographical location or local authority boundaries, which fails to acknowledge key differences between islands in close geographical proximity and overlooks commonalities between geographically dispersed islands. Measures of population size and travel time to larger population centres are routinely used in domestic and international examples of such classifications. However, these do not capture island-specific factors affecting those who live and work in islands, which are key considerations for research and policy making.

Gow's Typology of Scotland's Islands was developed as part of a doctoral research project exploring island connections and return migration in order to address these issues and tackle some of the difficulties associated with ensuring the anonymity of research participants and the communities they live in when working with islands with small populations. The typology is framed by two concepts, capacity and reliance, and classifies inhabited islands that met the inclusion criteria set for the research project. Specifically, the typology examines: (i) the capacity an island has to meet the day-to-day needs of its inhabitants, and (ii) the island's reliance, by which we mean the extent to which it must rely on external actors to meet these needs, and the ease or difficulty island residents might experience in doing so. The concepts, factors and associated dimensions are described in section 5 and have been used to create the classes, or 'types' outlined in section 6.

Gow's Typology of Scottish Islands necessarily indicates aspects of capacity and reliance in Scotland's islands at a specific point in time. However, it has been developed in a way that allows it to be updated and also has the potential to be extended for wider use, both by adding additional factors to complement the conceptual framework, and/or by adding dimensions to existing factors. Further, it is possible that a similar approach could be adopted for other global island groupings.

2 Purpose of this technical note

This technical note describes the process followed to collate and analyse data used to create Gow's Typology of Scotland's Islands. A discussion of the results, applications and potential extensions of the typology are set out in a forthcoming academic publication (Gow et al, forthcoming).

3 Baseline data and exclusions

In line with the needs of the research project for which the typology was developed, the initial iteration of the typology detailed in this technical note is concerned with offshore islands in Scotland which are permanently inhabited by two or more households, are not connected to the mainland via a permanent fixed link¹, and for which the relevant data is available. The 2022 Islands Boundaries Dataset from the National Records of Scotlandⁱ, which listed the habitation status of 179 Scottish islands, was used as a starting point to identify islands for inclusion in the typology. Based on the parameters of the research, a number of islands were then excluded from the typology, as described in Table 1 (full details of the islands excluded at each stage of the process can be found in Appendix 1).

¹ Islands with fixed links to the Scottish mainland were excluded from this initial iteration of the typology due to the parameters of the research and the factors of capacity and reliance considered which are necessarily influenced by the ability to access mainland Scotland without relying on ferries or air travel. However, it should be noted that there is no suggestion that the islands excluded based on their fixed links cannot be considered as islands from other perspectives, for example from historical or cultural stand points, or in the wider research and policy making context.

Step	Category	Reason for exclusion	Number of islands excluded ²
1	Uninhabited islands	The research project is only concerned with inhabited islands.	58
2	Islands located in in-land waters (e.g. freshwater lochs)	The research project is only concerned with islands located offshore.	9
3	Islands with a permanent fixed link to the Scottish mainland	While these islands may experience challenges associated with their location, a permanent fixed link means they are not reliant on ferry or air travel for the transportation of goods and people. It could therefore be argued that these areas align the more closely to other “remote rural” areas of Scotland than they do to islands with no permanent fixed link.	8
4	Islands which are solely owned or managed by private interests	These islands are either managed as intentional communities or wholly privately owned by individuals or organisations. As such there are unlikely to be opportunities for residence on the island without having a connection to the intentional community, private owner, or commercial operation.	4
5	Islands which remain in the list following previous exclusions but for which key data is not available	The <i>Inhabited Islands Report Appendix Tables</i> ⁱⁱ , which are based on the 2011 census, are used for key measurements within the typology. The exclusion of islands not featured in this dataset only affects a small number of islands with very small populations which are not served by scheduled transport links. This exclusion only affects islands without a permanent fixed link to another island for which combined data is available in the aforementioned tables.	15
6	Islands with fewer than two households (based on 2011 census figures)	The research centres around island communities rather than individual dwellings and therefore requires there to be more than one household on an island.	15

Table 1: Summary of islands excluded from the typology

² Only includes islands in this category not excluded in previous steps.

4 Islands included in the typology

Following exclusions, 71 islands were identified for inclusion in the typology. The final list includes a mix of standalone islands (i.e. those not permanently linked to any other island) as well as those islands which are connected to other islands via means of bridges, causeways, or tidal access points (for example, Burray in Orkney or Gometra in Argyll). For the purposes of this typology, islands with permanent or tidal connections to each other have been grouped together. While it is recognised that there may be differences between islands within these groupings in terms of the dimensions considered, the same can be said about different areas within the larger standalone islands covered by the typology (i.e., between Bowmore and Portnahaven in Islay). Choosing to group together islands which are connected to each other via fixed link is also consistent with the decision to exclude islands which are permanently connected to the mainland from the typology. However, it is important to note that there will be nuances between the different areas of larger islands and between the different islands within island groupings which may not be captured by this typology.

This resulted in the following list of 49 island groupings to be included within the typology:

- | | | |
|-----------------------|---|----------------------------|
| 1. Arran | 18. Gigha | 35. Raasay |
| 2. Barra & Vatersay | 19. Graemsay | 36. Rousay |
| 3. Bressay | 20. Hoy & Walls | 37. Rum |
| 4. Bute | 21. Iona | 38. Sanday |
| 5. Canna & Sanday | 22. Islay | 39. Shapinsay |
| 6. Coll | 23. Jura | 40. Skerries |
| 7. Colonsay & Oronsay | 24. Kerrera | 41. Stronsay |
| 8. Cumbrae | 25. Lewis, Harris & connected isles | 42. Tiree |
| 9. Easdale | 26. Lismore | 43. Uist & connected isles |
| 10. Eday | 27. Luing | 44. Ulva & Gometra |
| 11. Egilsay | 28. Mainland Orkney & connected isles | 45. Unst |
| 12. Eigg | 29. Mainland Shetland & connected isles | 46. Westray |
| 13. Erraid | 30. Muck | 47. Whalsay |
| 14. Fair Isle | 31. Mull | 48. Wyre |
| 15. Fetlar | 32. North Ronaldsay | 49. Yell |
| 16. Flotta | 33. Papa Stour | |
| 17. Foula | 34. Papa Westray | |

Five island groupings listed above contain multiple islands which are not referenced in the name of the groupings. These are:

- **Lewis, Harris & connected isles** comprising Great Bernera, Lewis and Harris, and Scalpay.
- **Mainland Orkney & connected isles** comprising Burray, Mainland Orkney, and South Ronaldsay.
- **Mainland Shetland & connected Isles** comprising East Burra, Mainland Shetland, Muckle Roe, Trondra, and West Burra.
- **Uist & connected isles** comprising Baleshare, Benbecula, Berneray, Eriskay, Flodaigh, Grimsay (NW Benbecula), Grimsay (SW Benbecula), North Uist, and South Uist.
- **Skerries** comprising Bruray and Housay.

5 Factors and dimensions

Gow's Typology of Scotland's Islands focuses on areas which affect how islands operate on a day-to-day basis. Three factors were chosen to reflect this: population, local amenities and logistical connectivity. The population and local amenities factors provide an indication of the human capital and basic services available within the boundaries of an island or connected island grouping. This acts as an indicator of how much capacity an island has to fulfil certain basic daily needs and, conversely, how much it must rely on external actors to do so.

The logistical connectivity factor provides an indication of how easy or difficult it might be to rely on external actors by examining ferry connections from and to each island or island grouping. Ferry connections were chosen because ferries are the most universal method of transport from and to the islands considered. They are used not only for people travelling for work, leisure, medical attention, and more, but also for the transportation of goods and tradespeople travelling with tools and equipment. All but one island in the typology (Erraid) is served by a scheduled ferry service whereas commercial flights are only available from and to selected islands. Using ferry connections as a lens for this factor therefore provides a level of consistency for analysis across all islands considered.

5.1 Population

Population size and population change over time were chosen as dimensions for this factor with data from the 2011 and 1981³ census, and the subsequent Inhabited Islands Report Appendix Tablesⁱⁱ from the Scottish Government, used as the data source. Population size provides an indicator of the potential human capital available within an island to provide services on a paid or voluntary basis, as well as of potential market size, which may affect the willingness or ability of external actors to serve the island. Population change over time was selected as an indicator of the stability of this resource. A number of wider dimensions were considered for inclusion within the population factor including areas such as age, gender, and socio-economic grouping. However, given that the purpose of the typology is to create a broad overview of capacity and reliance, total population was deemed to provide an adequate measure to create a lens to consider how the broad topic of population levels and depopulation might affect islands considered within the research. While population density was considered as a dimension it was noted that density can vary widely within individual islands and island groupings. Population density was therefore deemed to have limited value for this iteration of the typology.

Each dimension was scored as set out below, with the sum of the scores for each dimension used to create an overall population score for each island / island groupings within the typology.

5.1.1 Population size

Once the population of each island or island grouping was determined, islands/island groupings were sorted into deciles based on relative population size. Deciles were chosen as opposed to a categorisation such as quintiles in order to allow the scoring to reflect the diversity of population sizes amongst the islands considered (the populations ranged from 8 to over 21,000, the median population being 162 in 2011). These deciles were then used to create the scores within this dimension with a score of 0.9 given to the island groupings with the largest populations and a score of zero allocated to those with the smallest populations.

5.1.2 Population change over time

Population change over 30 years to 2011 was calculated for each island or island grouping⁴ with results sorted into deciles based on relative population change. Across the 71 islands considered in the typology, population change ranged between falls of 55% and rises of 82%⁵, though it should be noted that these extreme rates tend to be

³ The 2011 census provided the most up to date official statistics on island population levels at time of analysis. The inconsistent breakdown of island populations in census reporting prior to 1981 restricted the time period over which population change could be assessed.

⁴ It should be noted that 1981 population data was not available for Erraid and Gometra and these islands were therefore allocated a score of zero to reflect that they have the lowest 2011 populations within the typology.

⁵ The number of islands seeing an increase in population was the same as the number of islands seeing a decrease in population, with one island reporting the same population in 1981 and 2011. For those islands seeing an increase in population the median increase was 23%. For those seeing a decrease in population the median decrease was 15%.

experienced more frequently in islands with very small populations where the migration of small numbers of people may have a significant impact. Those island groupings which saw the largest positive percentage change in population scored 0.9, and those with the largest negative percentage change scored zero. Where connected islands are grouped together for the purpose of the typology the average score for islands in the group was calculated to provide a final score for each island grouping.

5.2 Local amenities

The availability of basic amenities and services on the islands reflects the ability for those on the islands to meet their daily needs within the island setting. There are four dimensions within this factor: schooling, GPs and hospitals, grocery stores, and vehicle fuel. These dimensions were selected not only because they might be seen as key aspects of daily life in the UK, but also because provision of these services/ facilities is highly variable across the islands considered.

Data on schooling were collated using information published on Local Authority and primary and secondary school websites supplemented with information obtained via requests for clarification sent by email to the relevant Local Authority education team. Data on GPs and hospitals were gathered from a variety of NHS sources including GP practice data from ISD Scotlandⁱⁱⁱ and hospital and GP listings published on NHS health board websites. The websites of GP practices were used to clarify information gleaned from other sources, supplemented by email/ telephone enquires where necessary. The availability of grocery shops and vehicle fuel on islands was established using data collected for a previous project undertaken in 2020^{iv}, with further checking and clarification carried out using online searches, emails and phone calls in November 2022.

Scoring within this factor is based on a six-point scale reflecting the relative provision of amenities in each island (see Table 2). A score of zero was allocated to islands with the lowest relative levels of provision for each amenity, and a score of 0.5 was allocated to islands with the highest relative levels of provision for each amenity. After each dimension was scored the sum of the scores for each dimension was used to create an overall local amenities score for each island or island groupings within the typology.

Score	Schooling	GPs & Hospitals	Grocery Stores	Vehicle fuel
0.5	Primary and secondary schooling accessible daily via road to S6 ¹ .	Hospital and more than one GP practice with resident doctor accessible via road.	Three or more grocery stores accessible via road with at least one national chain.	Multiple outlets accessible via road with at least one national chain.
0.4	Primary schooling and secondary schooling to end of compulsory education (S4 ¹) accessible daily via road. Pupils must board away from home to access additional schooling (to S6 ¹).	Hospital and one GP practice with a resident doctor accessible via road.	Three or more grocery shops accessible via road. No national chains.	Multiple outlets accessible via road, no national chains
0.3	Pupils must travel daily via ferry for some or all of their education to S6 ¹ or access to schooling is dependent on tides.	More than 1 GP practice with resident doctor accessible via road.	Two to three local shops with at least one national chain accessible via road.	One fuel outlet owned by national chain accessible via road
0.2	Pupils must travel daily via ferry for some or all of their compulsory education (to S4 ¹) or access to this is dependent on tides. Pupils must board away from home to access additional schooling (to S6 ¹).	1 GP practice with resident doctor accessible via road.	Two to three local shops accessible via road. No national chains.	One fuel outlet accessible via road (not a national chain).
0.1	n/a	1 GP practice with visiting GP cover at least once a week accessible via road.	One small local shop.	n/a
0	Pupils may access primary schooling daily via road or ferry but must board away from home to access high school (typically from the age of 12).	No GP practice or hospital.	No shops.	No fuel outlets.

Table 2: Scoring matrix for local amenities factor

Notes:

1 - Compulsory education in Scotland covers the period to the end of S4. Pupils may then elect to remain in education for S5 and S6 to complete further qualifications.

2 - It should be noted that services available in island hospitals are limited, however the availability of a hospital may allow access to services such as physiotherapy and ultrasound scans without travel to the mainland or facilities for convalescence.

3 - With regard grocery stores and fuel outlets, the presence of a national chain is deemed an advantage as it offers benefits associated with economies of scale.

5.3 Logistical connectivity

A reliance on ferries is central to life in the islands considered within this typology. The access that ferry travel allows from and to islands has been used here as an indicator of the ease by which island communities can access the external actors they rely on. This includes external actors who visit the islands, such as those supplying local grocery stores, and tradespeople and professionals travelling to the island for business. It also encompasses external actors based on the mainland whom island residents can only access by leaving the island, such as medical specialists.

Four dimensions were selected to illustrate the diversity of ferry provision across the islands considered in the typology: average crossing time, crossing frequency, mainland port into which the ferry arrives, and insularity. All data were calculated using the 2022/3 winter timetables published by CalMac Ferries^v, NorthLink Ferries^{vi}, Argyll and Bute Council^{vii}, and Pentland Ferries^{viii} to indicate minimum service levels throughout the year. For the purposes of this typology Skye and Seil are considered as an extension of the Scottish mainland due to access via permanent, fixed links. Therefore, ferries arriving on Skye or Seil have been classed as mainland connections.

Scheduled crossings leaving an island were used as the basis for this data set. On-demand services which require booking were not included given the complexity of attempting a systematic comparison where services have variable booking requirements. Where available, these services make up a negligible element of timetables. Details of how each dimension was scored are available below. Once scores for each dimension were calculated, the sum of the scores for each island or island group was calculated to create an overall logistical connectivity score for islands within the typology.

5.3.1 Average crossing time

Crossing time for individual routes varied between five minutes and 13.5 hours. Crossing time can also change within a route depending, for example, on the vessel in service or whether the ferry travels via other islands. To reflect this the average crossing time for each route departing an island was calculated by multiplying the number of minutes (m) each crossing variant took by the total number of crossings (c) for that variant within timetabled period to calculate a total crossing time for all sailings in all route variants, and then dividing this by the total number of all crossings (s) within the timetabled period:

$$\frac{(m \times c) + (m \times c) + (m \times c)}{s} = \textit{average crossing time}$$

Where an island was served by more than one route, the total crossing times and the number of times this crossing operated during the timetabled period was calculated for all routes and divided by the total number of crossings on all routes. The results from all islands / island groupings were then sorted into deciles to reflect the wide variability of crossing times across the islands considered. Each decile was then attributed a score from zero to 0.9 with islands served by ferries with the longest crossing time on average receiving a score of zero, and islands served by the shortest crossing time on average receiving a score of 0.9. Examples of how the average crossing time calculations were applied are provided below.

It should be noted that, for islands with no direct connection to the Scottish mainland a score was applied based on the island that provides the final access point to the mainland. For example, for Iona the scores for Mull were used, and for Unst the scores for Mainland Shetland were used. In order to reflect the true nature of travel from these islands an insularity score was applied (see section 5.2.4) to take into account the additional barriers to accessing external actors.

Example 1 - Eigg

Eigg is served by a single ferry route (Eigg to Mallaig) which may travel direct (crossing 1) or via other islands (crossing 2).

Crossing	Crossing time (m)	Total scheduled crossings in timetabled period (c)
Crossing 1	80 minutes	68
Crossing 2	240 minutes	23
Total		91

Table 3: Ferry crossings from Eigg

Average crossing time for Eigg:

$$\frac{(80 \times 68) + (240 \times 23)}{91} = 120 \text{ minutes}$$

Example 2 - Arran

Arran is served by two ferry routes arriving at 3 mainland ports (Brodict to Ardrossan and Lochranza to Claonaig or Tarbert).

Crossing	Crossing time (m)	Total scheduled crossings in timetabled period (c)
Brodict to Ardrossan	55 minutes	622
Lochranza to Claonaig	30 minutes	42
Lochranza to Tarbert	85 minutes	152
Total		816

Table 4: Ferry crossings from Arran

Average crossing time for Arran:

$$\frac{(55 \times 622) + (30 \times 42) + (85 \times 152)}{816} = 59 \text{ minutes}$$

5.3.2 Crossing frequency

The frequency of crossings on a route varied between fewer than one crossing per day to more than 31 crossings per day, with a higher number of crossings per day taken as reflecting more opportunities for travel between islands and the mainland. An island / island grouping may also be served by up to three routes. This can potentially provide a greater number of crossings per day, but can also offer additional benefits, for example when one route is inaccessible due to wind direction or technical failure another route may still be available.

To reflect this complexity, the average number of crossings leaving an island / island grouping in a day was calculated for each ferry route. The results were then split into deciles to provide a scoring for each route. Deciles were used as opposed to other categorisation such as quintiles to reflect the diversity identified within this dimension. Routes with the highest number of average crossings per day scored 0.9 and the islands served by the fewest crossing per day on average scored zero. In order to reflect the added advantages of an island grouping being served by multiple

routes, the sum of the scores for all of the routes serving an island was then used to provide a final score within this dimension. The examples below illustrate how this was applied to the typology.

For islands with no direct connection to the Scottish mainland a score was applied based on the island that provides the final access point to the mainland. For example, for Iona the scores for Mull were used, and for Unst the scores for Mainland Shetland were used. In order to reflect the true nature of travel from these islands, an insularity score was applied (see section 5.2.4) to take into account the additional barriers to accessing external actors.

Example 3 - Mainland Shetland and connected isles

The Mainland Shetland and connected isles grouping is served by a single ferry route with an average of 1 crossing per day. This places it within the third decile when comparing the average number of crossings per day across island / island groupings within the typology.

Route	Average scheduled crossings per day	Decile	Score
Lerwick to Aberdeen	1	0.3	0.3
Total score			0.3

Table 5: Ferry crossings from Mainland Shetland

Example 4 - Mainland Orkney and connected isles

The Mainland Orkney and connected isles grouping is served by three ferry routes which differ in the number of crossings per day. The average number of crossings per day was calculated for each route and this was used to calculate which decile the route sits within when compared with other routes within the typology and a score was allocated to each route based on this decile. The sum of these scores was then calculated to provide each island with an overall score for this dimension.

Route	Average scheduled crossings per day	Decile	Score
St Margaret's Hope to Gills Bay	3	0.5	0.5
Stromness to Scrabster	1.83	0.4	0.4
Kirkwall to Aberdeen	0.29	0.0	0.0
Total score			0.9

Table 6: Ferry crossings from Mainland Orkney

5.3.3 Mainland destination port

The location and size of mainland ports serving island ferry routes varied considerably. For example, ferries from Orkney and Shetland berth in Aberdeen city centre, offering passengers ready access to the city's services and onbound travel via road and rail, but ferries from Gigha berth at Tayinloan and passengers on this service must travel around 70 miles by winding country roads to access the nearest population centre, the *Remote Small Town*⁶ of Oban. This requires us to consider mainland port location when considering logistical connectivity, given the access the port location itself provides to external actors. The mainland port for each route was given a scoring based Scottish Government's six-fold urban rural classification (2020)^{ix} with the 'remote rural' category further split into those ports located within a settlement (e.g. Ullapool) and those located outwith a settlement (e.g. Kennacraig)⁷ to reflect likely

⁶ Based on Scottish Governments UR6 Classification.

⁷ For the purposes of this typology a settlement has been defined as an area which has its own data set within the National Records of Scotland Small Area Population Estimates for 2021.

access to amenities at each location. The six-fold classification was chosen for simplicity over the eight-fold classification given that the additional nuance offered by the latter did nothing further to distinguish between mainland port locations.

The following scoring was applied to mainland port locations to reflect the likely access the location offers to external actors:

Mainland destination dimension scoring chart	Score
Large urban area	0.5
Other urban area	0.4
Accessible small town	0.3
Accessible rural / Remote small town	0.2
Remote rural (within a settlement)	0.1
Remote rural (outwith a settlement)	0

Table 7: Scoring matrix for mainland port destinations

For island groupings which are only served by one ferry route this score was directly translated into a score for the mainland destination dimension. Where island groupings were served by more than one ferry route the score for this dimension was based on the mainland destination port which provided the fastest access to an urban settlement (i.e. a small town (remote or accessible), other urban area, or large urban area) via ferry and, if required, road.

5.3.4 Insularity

The insularity score for this dimension reflects the number of touchpoints required when travelling between an island and mainland Scotland. Islands with a direct ferry connection have a single touch point and are therefore considered to be insular, whereas those requiring two ferries to connect to mainland Scotland have two touch points and are considered to be affected by double insularity. Two islands within the typology (Unst and Fetlar) require three ferries to connect to the Scottish mainland and are therefore affected by triple insularity. This affects access to external actors based in mainland Scotland in a variety of ways including in terms of cost, time and logistical complexity. Including an insularity dimension within the logistical connectivity factor allows us to reflect this and also provide some correction to the scoring for crossing length and crossing frequency for islands without direct connections to the Scottish mainland. These scores are currently based on the final island those traveling from and to the island must travel via to access the mainland. Without applying an insularity weighting the scores for the crossing frequency and crossing time dimensions would provide a false picture of the access islands without direct connections to the Scottish mainland have to external actors. To adjust for this insularity scores were applied to islands and island groupings as set out in Table 8.

Insularity dimension scoring chart	Score
Direct ferry connection to the Scottish mainland	0.5
Double insularity (two ferries required to access the Scottish mainland)	0
Triple insularity (two ferries required to access the Scottish mainland)	-0.5
No ferry connection off island	-1

Table 8: Scoring matrix for insularity dimension

5.4 Final scoring

The scores from the dimensions within each factor were added together to create factor scores for population, logistical connectivity, and amenities. The highest and lowest possible scores, and highest and lowest actual scores, per category are listed in Table 9.

Factor	Highest possible score	Lowest possible score	Highest actual score	Lowest actual score
Population	1.8	0	1.6	0
Local amenities	2.0	0	1.9	0
Logistical connectivity	3.0	-1	2.6	0.2

Table 9: Scoring parameters by dimension

6 Classification of island types

Once all the islands / island groupings had received a score for each factor a heat map was created to illustrate performance across all areas and assess options for the classification of island types. It is important to emphasise at this stage that Gow's Typology of Scottish Islands is designed to provide a snapshot of an island / island group relative to other islands included in the typology at a specific point in time. The typology does not provide a comparison to the mainland nor offer a scale against which to measure optimal performance in each factor or dimension. As such it cannot be assumed that islands / island groupings receiving high scores within a factor or dimension do not face issues or challenges in the associated area, merely that they have the highest levels of provision relative to the group considered. From the heatmap it was clear that a selection of islands fell into an initial three groupings:

- those with high scores across all factors;
- those with mid-range scores across all factors; and
- those with low scores across all factors.

An assessment was then made about the similarities and differences between the remaining islands / island groups to develop the final classification of seven island types. Consideration was given first to the availability of local amenities and population in an island / island grouping. This is based on the principle that the resources available locally can act as an indicator of internal capacity and, conversely, the reliance an island has on external actors – i.e. the fewer amenities that are available in an island, the more likely it is that islanders will rely on logistical connectivity to access amenities. Logistical connectivity was then considered as a secondary factor in the classification process in order to recognise how experiences of this differ across island groupings. The process identified seven island types within this typology iteration:

- Connected Independent Islands;
- Fragile Islands;
- Independent Hub Islands;
- Reliant Inner Isles;
- Reliant Outer Isles;
- Independent Outer Isles; and
- Semi-Reliant Islands.

The map in Figure 1 indicates the dispersal of these island types across the islands considered under the typology. In naming the island types a conscious decision was made to avoid names which implied value judgements or a scale. Rather, titles have been used which illustrate how the concepts of capacity and reliance affect islands within the grouping. As such it should be noted that the island types are not hierarchical. There is no assumption, for example, that a Semi-Reliant Island could or should aim to be an Independent Hub Island. Instead, Gow's Typology provides a new lens through which to examine and understand the diverse landscapes, opportunities and needs of the islands considered.

6.1 Map of island types

The map in Figure 1 indicates island types for islands included within Gow’s Typology of Scotland’s Islands.

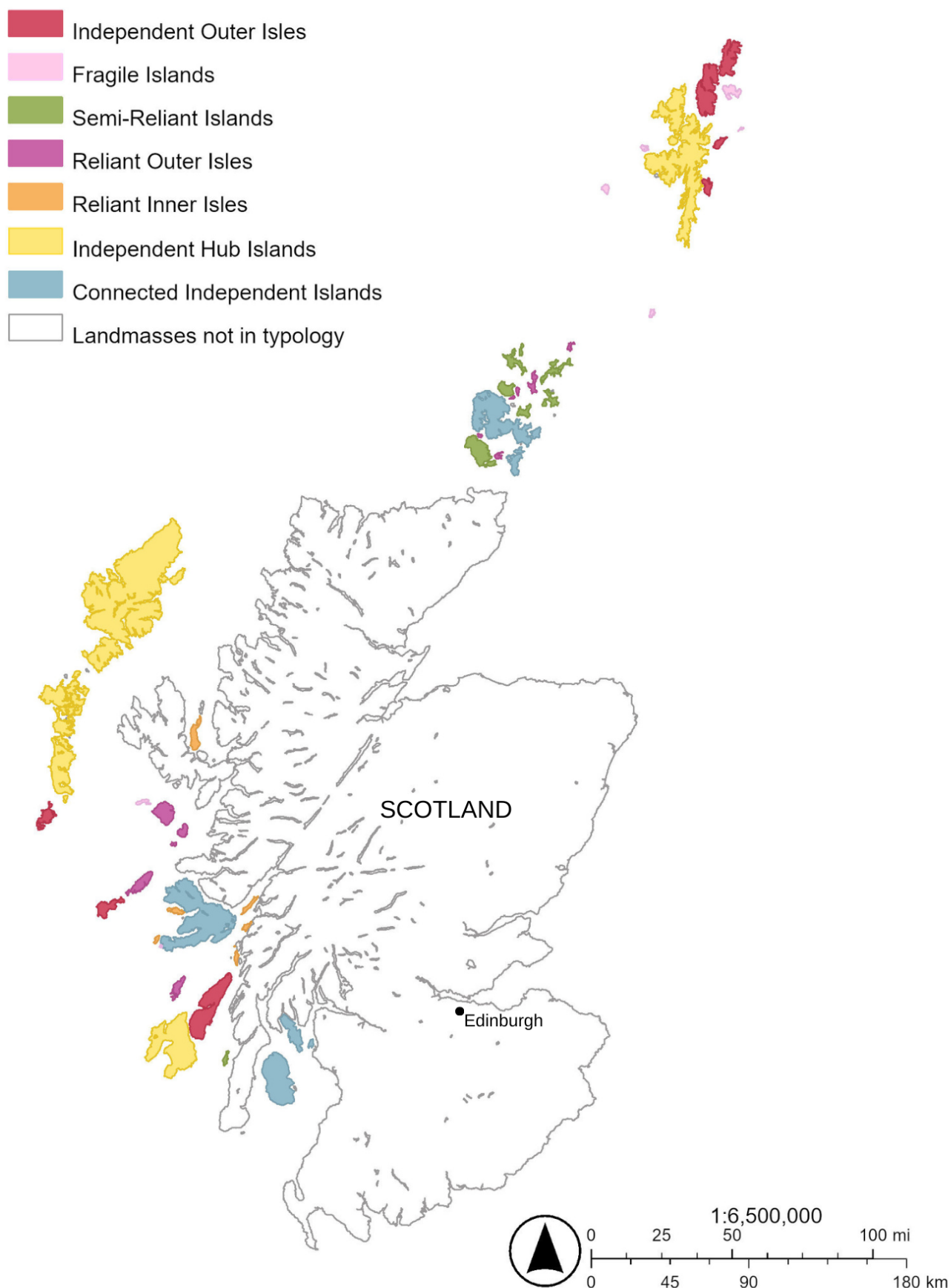


Figure 1 – Islands in Gow’s Typology of Scotland’s Islands by island type.

Appendix 1 : Islands excluded at each stage

Step 1 – islands which were uninhabited according to the 2022 Island Boundaries Dataset from the National Records of Scotland.

Islands excluded at step 1:

- | | | |
|--|---------------------------|---------------------------------------|
| 1. Ailsa Craig | 20. Eilean Musdile | 41. Muckle Skerry (Pentland Skerries) |
| 2. Ardwall Isle | 21. Ensay / Easaigh | 42. Orasaigh |
| 3. Bass Rock | 22. Fara | 43. Ornsay |
| 4. Berneray / Beàrnaraigh (Vatersay) | 23. Grunay | 44. Orsay |
| 5. Boreray / Boraraigh (St Kilda) | 24. Helliar Holm | 45. Pabbay / Pabaigh |
| 6. Calve Island | 25. Inch | 46. Pladda |
| 7. Cara Island | 26. Inchcape / Bell Rock | 47. Ronay / Ronaigh |
| 8. Carna | 27. Inchcolm | 48. Scarba |
| 9. Cava | 28. Inchconnachan | 49. Scarp |
| 10. Cnoc na h-Airigh | 29. Inchkeith | 50. Shivinish |
| 11. Cnoc nan Uibhean | 30. Inchmarnock | 51. Shuna Island (Lismore) |
| 12. Copinsay | 31. Island Daavar | 52. Skerryvore |
| 13. Dubh Artach | 32. Isle of May | 53. St Kilda or Hirta / Hiort |
| 14. Eilean an Stalcaire / Castle Stalker | 33. Isle of Noss | 54. Sule Skerry |
| 15. Eilean Dubh | 34. Island of Stroma | 55. Swona |
| 16. Eilean Fladday | 35. Little Colonsay | 56. Taransay / Tarasaigh |
| 17. Eilean Leireabhagh | 36. Little Cumbrae Island | 57. Texa |
| 18. Eilean Mhidhinis | 37. Lingeigh | 58. Torsa |
| 19. Eilean Mòr (Flannan Isles) | 38. Lunga (Luing) | |
| | 39. Mingulay | |
| | 40. Muckle Flugga | |

Step 2 – islands located in inland waters (e.g. freshwater lochs).

Islands excluded at step 2:

- | | | |
|----------------------------------|---------------|------------------|
| 1. Fraoch-eilean | 4. Inchfad | 7. Inchmurrin |
| 2. Friarton or Moncreiffe Island | 5. Inchlonaig | 8. Inchtavannach |
| 3. Inchcruin | 6. Inchmahome | 9. Innis Chonain |

Step 3 – islands with permanent fixed links to mainland Scotland.

Islands excluded at step 3:

- | | |
|--------------------------|------------------------|
| 1. Buchanness Lighthouse | 5. Eilean Tioram / Dry |
| 2. Eilean Ban | 6. Eriska |
| 3. Eilean Buidhe | 7. Seil |
| 4. Eilean Donnan | 8. Skye |

Step 4 – islands solely owned or managed by private interests.

Islands excluded at step 4:

1. Holy Isle⁸
2. Papa Stronsay⁹
3. Tanera More¹⁰
4. Scalpay (Skye)¹¹

Islands solely owned or managed by private interests which are connected by permanent fixed link to another island considered under this typology have not been excluded within this section due to the consideration of island groupings rather than individual islands in this context. For this reason Gometra is considered as part of the Ulva and Gometra grouping within the typology.

Step 5 – islands which remain in the list but from which there is no population data available in the 2011 census Inhabited Islands Report Appendix Tablesⁱⁱ.

Islands excluded at step 4:

- | | |
|------------------------------------|------------------------------|
| 1. Boreray / Boraraigh (Vatersay) | 9. Inch Kenneth |
| 2. Caisteal Chiosmuil | 10. Isle of Ewe |
| 3. Eilean a' Ghiorr | 11. Killegray / Ceileagraigh |
| 4. Eilean Horrisdale | 12. Lamb Holm |
| 5. Eilean Leathann | 13. Rubha Fiola |
| 6. Eilean na Cille | 14. Rubha nan Gall |
| 7. Eilean na h-Airigh | 15. Sunamul |
| 8. Goat Island / Eilean na Gobhail | |

Step 6: islands with fewer than two 2 households recorded in the 2011 census Inhabited Islands Report Appendix Tablesⁱⁱ, where the island does not have a permanent fixed link to another inhabited island which is not already excluded.

Islands excluded at step 6:

- | | | |
|---------------------|-----------------------|-----------------------------|
| 1. Auskerry | 6. Holm of Grimbister | 11. Sanda |
| 2. Danna | 7. Inner Holm | 12. Shona (or Eilean Shona) |
| 3. Eilean da Mheinn | 8. Isle Martin | 13. Shuna (Luing) |
| 4. Eilean Loain | 9. Pabay | 14. Soay |
| 5. Gairsay | 10. Rona (Skye) | 15. Vaila |

⁸ <https://www.holyisle.org/> (accessed 29th September 2022)

⁹ <https://www.papastronsay.com/> (accessed 29th September 2022)

¹⁰ <https://www.scotsman.com/arts-and-culture/ambitious-plans-remote-highland-island-tanera-mor-revealed-1432156> accessed 02/02/2023 confirming island sold privately in 2017.

¹¹ Listed as a private island on <https://www.privateislandsonline.com/islands-for-rent/europe/scotland/isle-of-scalpay> accessed 02/02/2023

End notes

ⁱ Islands Boundaries Dataset (2022) from the National Records of Scotland accessed at <https://www.nrscotland.gov.uk/statistics-and-data/geography/our-products/other-national-records-of-scotland-nrs-geographies-datasets/islands> 27/07/2022

ⁱⁱ Inhabited Islands Report Appendix Tables accessed at <https://www.scotlandscensus.gov.uk/documents/inhabited-islands-analytical-report> 27/07/2022

ⁱⁱⁱ The original link used for this data is no longer available as ISD has been incorporated into the Public Health Scotland website. However the data for April 2022 was accessed on 13/07/22 and used to create the typology. The most up to date data set is published at <https://publichealthscotland.scot/our-areas-of-work/primary-care/general-practice/general-practice-data/general-practice-list-size-and-demographics-information/>

^{iv} Data previously collected for the Scottish Islands Passport Project (www.islands.scot). Original data collection involved contacting local stakeholders on each island to identify the availability of grocery stores and fuel outlets. This base data was used as the starting point for these dimensions within the Local Amenities factor, with all data checked for accuracy using online searches and, where required, direct contact with island residents.

^v CalMac winter timetables accessed via <https://www.calmac.co.uk/calmac-winter-timetables> 24/10/2022

^{vi} NorthLink timetables accessed via <https://www.northlinkferries.co.uk/booking-info/> 28/09/2022

^{vii} Argyll and Bute Council Ferry information accessed via <https://www.argyll-bute.gov.uk/transport-and-streets/ferry-travel> 28/09/2022

^{viii} Pentland Ferries timetables accessed via <https://pentlandferries.co.uk/> 28/09/2022 with additional confirmation via email

^{ix} Scottish Government six-fold Urban Rural classification accessed via <https://www.gov.scot/publications/scottish-government-urban-rural-classification-2020/pages/2/> 08/11/2022

Further information

For more information on Gow's Typology of Scotland's islands please contact:

- Kirsten Gow – kirsten.gow@hutton.ac.uk / k.gow.21@abdn.ac.uk
- Professor Lorna Philip – l.philip@abdn.ac.uk
- Dr Ruth Wilson – ruth.wilson@hutton.ac.uk

The authors gratefully acknowledge the support of Macaulay Development Trust in the development of this work.

Gow's Typology of Scotland's Islands: Technical notes © 2023 by Kirsten Gow, Margaret Currie, Paula M. Duffy, Ruth Wilson, Lorna J. Philip is licensed under Attribution-ShareAlike 4.0 International. To view a copy of this license, visit <http://creativecommons.org/licenses/by-sa/4.0/>

