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Pinpointing Mr McDonald's Scottish Paternal Ancestral Genetic Homeland

A Scottish Case Study

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Introduction

A simple painless commercial ancestral Y chromosome DNA test will potentially provide one with the names of many hundreds of individuals with whom one shares a common male ancestor, but what often perplexes people is how one can match individuals with many different surnames? The answer is quite simple. Roughly 1,000 years ago one's direct medieval male ancestor, the first for example to call himself 'McDonald' was living in close proximity to others with whom he was related but who inherited other surnames like MacIndoe, Johnstone and Mitchell. Given that 1,000 years have passed since paternally inherited surnames became common, there will be many descendants of those individuals some of whom will today undergo commercial ancestral Y-DNA testing. Hence the surnames of one's medieval ancestor's neighbours will be revealed in today's Y-DNA test results.

Early 19th century census data demonstrates that Scottish surnames could still be found concentrated in the areas from which they originated. One can therefore use census data to determine the origin of the surnames that appear in one's Y-DNA results, identifying an area common to all, and reveal ones '**Paternal Ancestral Genetic Homeland.**' The genetic homeland is the small area (usually within a 5 mile radius) where one's ancestors lived for hundreds if not thousands of years. It is the area where one's ancestor first inherited his surname surrounded by relatives who inherited others. It is the area where ones ancestors left their mark in its placenames, its history, and in the DNA of its current inhabitants. Since modern science can pinpoint a paternal ancestral genetic homeland it can also be used to confirm it by DNA testing individuals from the pinpointed area.

Notes of caution!

1. In Ireland each of the estimated 1,500 distinct surnames had a single founding ancestor, that's an estimated 1,500 Adams from whom anyone with Irish ancestry can trace direct descent. But science has demonstrated that only 50% of individuals with a particular Irish surname will be related to the surnames founding ancestor (the surname Adam), the other 50% of males will have an association that has arisen as a result of what are called 'non-paternal events' usually a result of adoptions or maternal transfer of the surname. Since Scotland adopted a similar Clan based society these scientific findings can be applied to Scotland and people with Scottish paternal ancestry.
2. Often people are looking for their DNA results to trace back to a specific area. One must remember that the results typically reflect one's ancestor's neighbours from around 1,000 years ago. As a result, if one's Scottish ancestor was descended from an Anglo-Saxon settler, Viking raider, or 12th Century Norman one's DNA results will reflect earlier English, Welsh, French, and possibly Scandinavian origin. One must approach this process with an open mind!

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Interpreting the Y-DNA test results

To pinpoint a paternal ancestral genetic homeland one must first identify the surnames that appear as one's closest genetic matches in a commercial ancestral Y-DNA database. Those surnames, particularly one's that recur throughout one's Y-DNA results will typically reflect the surnames of one's medieval ancestral neighbours. The test subject's closest genetic surname matches as revealed by commercial ancestral DNA testing are detailed in **Figure 1**.

37 Marker Matches					
Genetic Distance	Last Name	Earliest Known Ancestor	Y-DNA Haplogroup	Terminal SNP	Match Date
1	O'Daniel		R-M269		11/27/2018
2	Johnson		R-M269		11/27/2018
3	McAdoo		R-M269		11/27/2018
3	Johnson		R-M269		11/27/2018
3	Johnson	Mathias Matthew Johnson b 1744 d. 1799	R-M269		11/27/2018
4	Johnson		R-M269		11/27/2018
4	Johnson III		R-M269		11/27/2018
4	Mitchell		R-M269		11/27/2018

Figure 1: Mr McDonald's closest genetic surname matches as revealed in the FTDNA Y-DNA database. The more Y-DNA markers two people share the more recent their shared paternal ancestor once lived. Upon Y-DNA testing the test subject had few close genetic relatives in the FTDNA database. However, those matches are NOT RANDOM; he matches multiple individuals named Johnson (red arrows). Highlighted font denotes the ethnicity associated with each surname: Irish, Scottish, English/Scottish.

Upon commercial ancestral Y-DNA testing Mr McDonald did not match others named 'McDonald,' see **Figure 1**. This indicates that Mr McDonald may not be directly descended from his surnames founding ancestor; the McDonald-Adam, literally the first male (Adam) to take that surname who lived approximately 1,000 years ago (when surnames first appeared). However, McDonald is a very common surname, which means that were potentially many MacDonal-Adams, and hence the lack of genetic matches may simply be due to the fact that other MacDonal-Adams with whom he shares a common founding ancestor, have yet to take the Y-DNA test. The MacDonal is associated exclusively with Scotland, and the dominance of Scottish-associated surnames among the test subject's closest Y-DNA FTDNA matches indicates that his direct male ancestor lived somewhere within Scotland an estimated 1,000 years ago, see **Figure 1**. It is the test subject's Scottish-associated surname matches that best reflect the surnames of his medieval ancestor's neighbours, and which will reveal where his paternal Scottish ancestors originated.

Scottish surnames derived from 'Donald'

Early Scottish census data reveals individuals named MacDonal, MacDond, Donaldson and Donald. Since farmers in early census data concentrated in the area where their surname first appeared, or in the area where one's ancestors first settled, one can examine the distribution of Scottish farmers named MacDonal, MacDond, Donaldson and Donald to estimate how many Clans existed. By plotting the location of MacDonal MacDond, Donaldson and Donald farmers in early census data it reveals 28 distinct clusters; indicating the existence of at least 28 genetically distinct Scottish Clans that used surnames derived from Scottish 'Donald,' see **Figure 2**. Since the test subject carries the MacDonal surname, his paternal ancestry is potentially linked to one of the 28 locations within Scotland. It is Mr McDonald's closest Scottish-associated genetic surname matches as a snapshot of his ancestor's

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medieval neighbours which can be used to pinpoint where his paternal ancestors lived.

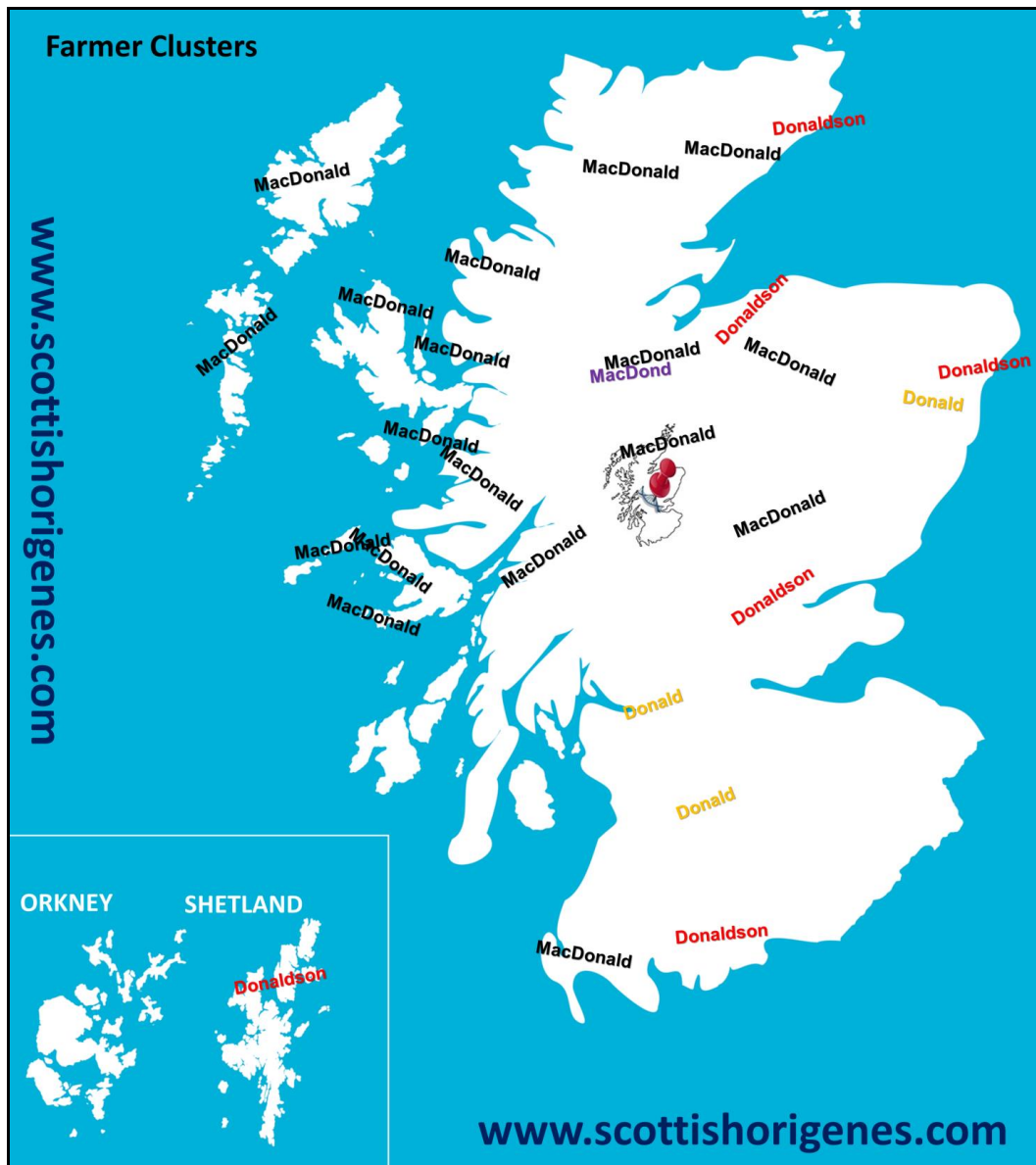


Figure 2: Scottish farming communities with surnames derived from 'Donald.' Farmers with each surname still concentrated in early census data in the area where their surname first appeared, or in the areas where their ancestors first settled. An examination of the distribution of Scottish farmers named MacDonald, MacDond, Donaldson and Donald reveals 28 distinct groups. Each group potentially represents a genetically distinct Clan (unrelated to one another). The test subject's paternal ancestry is potentially linked to one of these 28 locations. Each surname is positioned in the area where farmers with that surname concentrate in early census data.

A Paternal Ancestral link with the Renfrewshire, Stirlingshire and Dunbartonshire borderlands

The method of using genetic surname matches as revealed by commercial ancestral Y-DNA testing to pinpoint a paternal ancestral genetic homeland works by exploiting the link between the Y chromosome, surname and land; which are typically passed from father to son through the generations. In the absence of a link to the land the process becomes more challenging. The link with the land is greatest among the farming community, and since farmers in Scotland can still be found farming the land where their ancestor lived when he first inherited his surname, or where one's ancestor first settled within Scotland, one can plot where farmers with the surnames that appear in one's Y-DNA results cluster and identify an area common to all. This means for example that upon Y-DNA testing a MacDonald from Wigtownshire will be a genetic match to males with surnames like MacCamon, MacDowall and MacNeillie; surnames associated with the far southwest of Scotland. While in contrast a MacDonald from the Isle of Skye will upon Y-DNA testing have genetic matches to males named MacRaid, MacCowan and Matheson; surnames associated with the Western Isles of Scotland.

The Scottish-associated surnames McAdoo (MacIndoe), Johnson and Mitchell appears as the test subject's closest genetic relative, see **Figure 1**. Distribution mapping of farmers named MacDonald, MacDond, Donaldson, Donald, MacIndoe, Johnson and Mitchell reveals that they only occur together within Central Scotland, see **Figure 3**. The Scottish Origenes Surnames and DNA Map of Scotland details where farmers with each surname concentrated in early census data, and an examination of the area surrounding Glasgow City as it appears on that map reveals 'Donald' farmers concentrated to the north of the City, together with almost all of the surnames that appear among the test subject's closest genetic relatives, see **Figure 4**.

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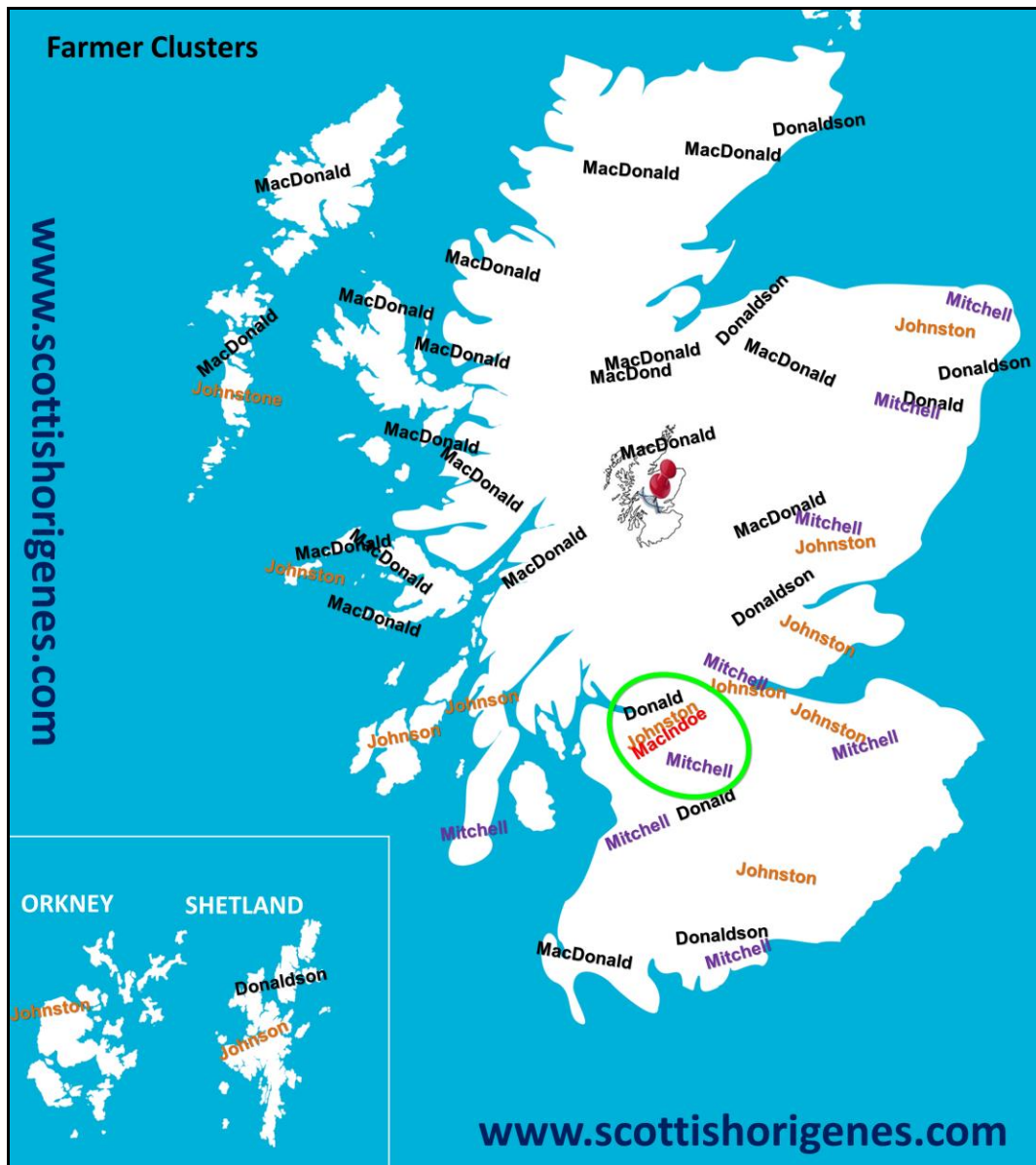


Figure 3: The test subject's closest genetic match reveals a paternal ancestral link with Central Scotland. Distribution mapping of the MacDonald, MacDond, Donaldson, Donald, MacIndoe, Johnson and Mitchell farming communities reveals that they only occur together in Central Scotland (green circle). Each surname has been placed on the map in the area where farmers with that surname concentrated in early census data. The most common spelling is detailed in each location.

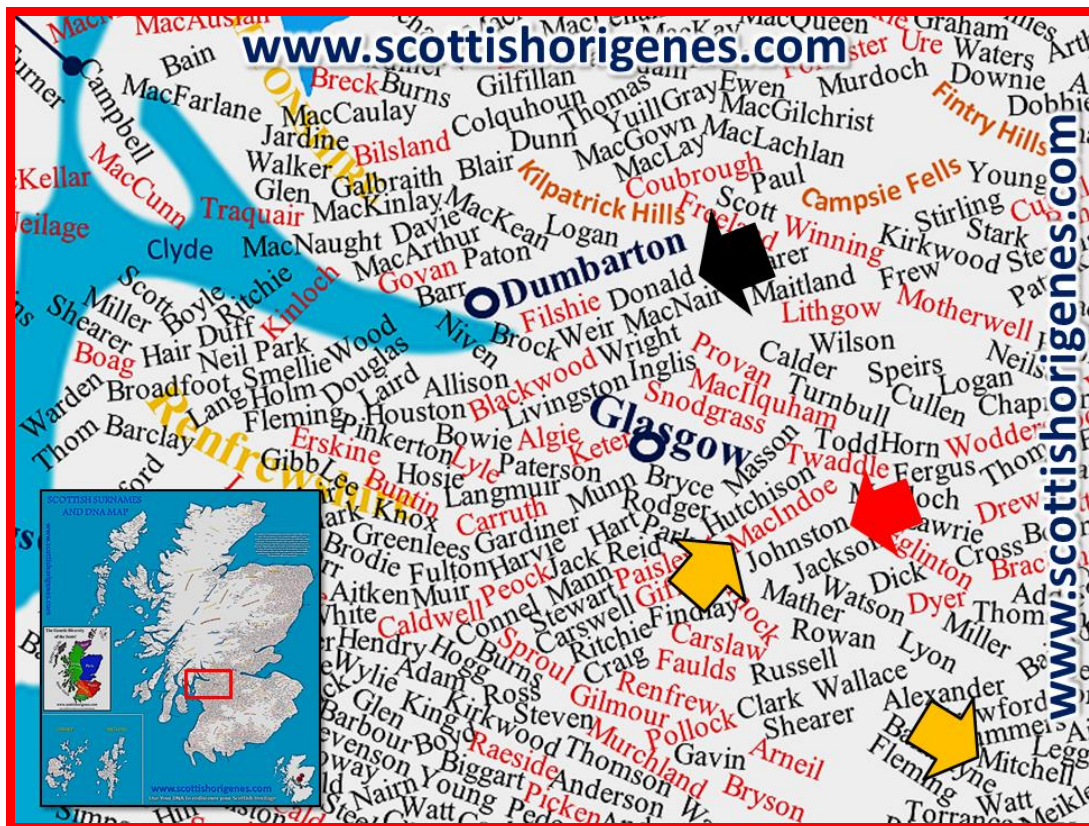


Figure 4: The Surnames of Glasgow. An examination of the surnames associated with the farmland that surrounds Glasgow city reveals Donalds (**black arrow**) together surnames that appear as close recurring (**red arrow**) and singular genetic matches (**orange arrow**) to the test subject. These surnames arose among a tribal group of related males living in the farmland that surrounds Glasgow City an estimated 1,000 years ago. As more genetic matches appear, more of the surnames associated with this area will appear among the test subject's closest genetic matches.

The Clan Territories of Northeast Scotland

By examining the locations of the castles and towerhouses that are historically associated with a particular surname, it reveals that Medieval Scotland was a patchwork of territories dominated by notable Clans and Families. Commercial ancestral Y-DNA testing has revealed that many males with Scottish paternal ancestry will be genetically related to at least one of the prominent Clans or families that once ruled over one's paternal ancestral genetic homeland. An examination of the castles and towerhouses of the area surrounding Glasgow reveals a mix of Clans of Gaelic origin to the northwest, and Families of Ancient Briton, Norman and Viking origin to the south and east, which is also reflected in the test subject's genetic matches which are a mix of Gael, Ancient Briton and Norman surnames, see **Figure 1** and **5**. Although none of these Clans and Families currently appear among the test subject's closest genetic matches, some may appear in the future as more and more people participate in commercial ancestral Y-DNA testing.



Figure 5: The principal Medieval Clans and Families of the Renfrewshire, Dunbartonshire, and Stirlingshire borderlands. While the area to the north of Glasgow was dominated by Gaels, the area to the east and south was dominated by a mix of Families that claim Ancient Briton, Viking and Norman origin. The test subject's Donald ancestors (**black arrow**) lived close to 'Dumbarton' (fort of the Britons) which was the ancient capital of the Ancient Britons before the dominance of the Gaels. The test subject's paternal ancestors lived in the borderlands of Gaelic, Ancient Briton and Norman worlds; and his closest genetic surname matches are a mix of surnames of Gael (McDonald, McIndoe), Ancient Briton (Johnstone) and Norman (Mitchell).

Mr McDonald's Scottish Paternal Ancestral Genetic Homeland

The Donalds of Central Scotland in early census data concentrate in the parish of Baldernock which originally lay in the County of Stirlingshire, it is there, in the farmland that lies between Glasgow City and the Campsie Fells; that the test subject's Scottish Paternal Ancestral Genetic Homeland is to be found, see **Figure 6**. It was there that his direct paternal ancestor first inherited the 'MacDonald' surname approximately 1,000 years ago (when surname first appeared in Scotland). His paternal ancestor lived among a tribal group of males among whom arose other surnames like, Johnstone, MacIndoe and Mitchell. When one's paternal ancestors have lived in an area for a long time, one will often find evidence of their links with that area in the surrounding historical monuments and placenames. An examination of the area surrounding Glasgow reveals a 'Donaldfield Road' and a 'Donaldswood' in Renfrewshire, see **Figure 6**. The test subject's paternal ancestors will also have left evidence of their ancestral links with this area in both the history of this location and in the DNA of the areas current inhabitants.

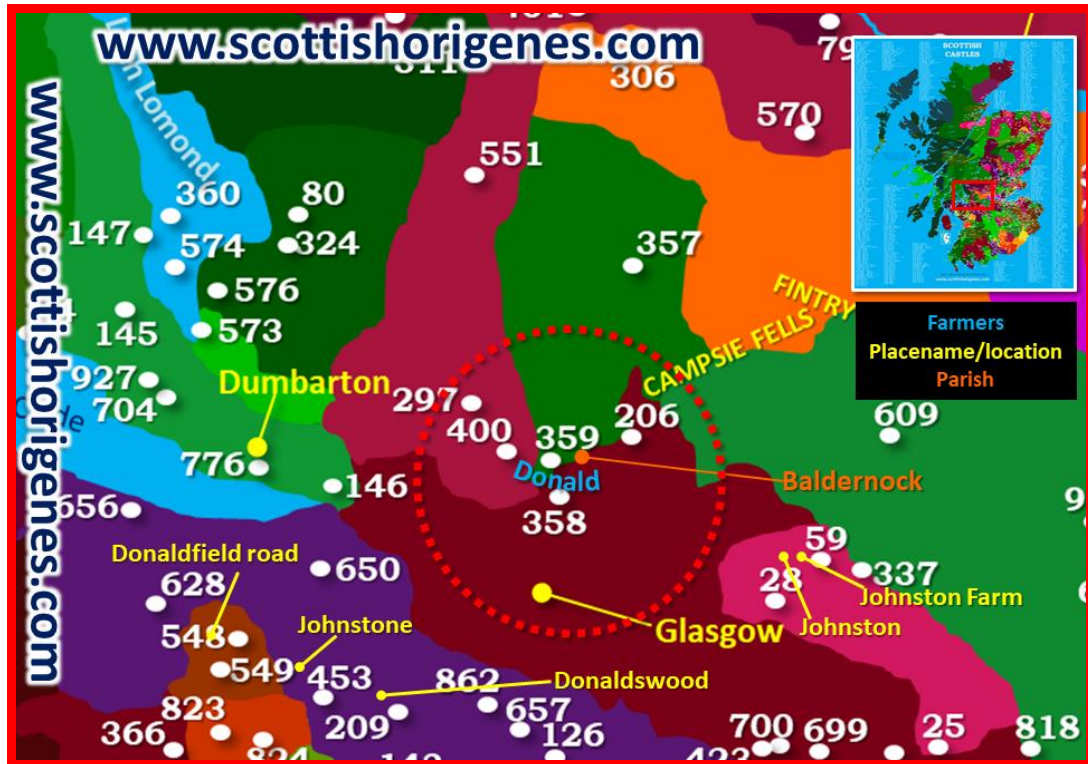


Figure 6: Mr McDonald's Scottish Paternal Ancestral Genetic Homeland. Mr McDonald's Scottish paternal ancestral genetic homeland (**orange broken circle**) is centred upon the parish of Baldernock that lies in the farmland to the north of Glasgow City. It was there that the test subject's paternal ancestor lived an estimated 1,000 years ago when paternally inherited surnames first appeared within Scotland, and where he first acquired the MacDonalld surname. His ancestors have left evidence of their long ancestral links with this area in at least 2 placenames in neighbouring Renfrewshire. The test subject's paternal ancestors will also have left evidence in the history of this location and in the DNA of the Donalds that may still live and farm there.

Ancient Britons

The modern Scots are a diverse bunch descended from pre-historic inhabitants, Celts (Picts, Ancient Britons, Gaels), Romans, Anglo-Saxons, Vikings, Norse-Gaels and Normans. However, clues to the ethnic origin of the test subject's paternal ancestors can be found in his more distant genetic surname matches which are a mix of surnames of Scottish, English and Welsh origin. This indicates that the test subject's founding paternal MacDonalld ancestor was of Cumbric speaking Ancient Briton origin. The Celtic Ancient Britons dominated Scotland before the arrival of their distant Celtic Gaelic cousins from Central Europe approximately 2,000 years ago. The area of Scotland ruled by the Cumbric speaking Britons was known as the 'Kingdom of Strathclyde,' and it stretched from Renfrewshire through Lanarkshire to the modern borderlands with England, with its capital at Dumbarton, close to where the test subject's paternal ancestral genetic homeland is to be found. The Y-DNA test results indicate that the test subject's Scottish paternal ancestors were descended from some of the first Celtic people that arrived in waves from Central Europe from around 800BC onwards. However, by the time that surnames appeared within Southern Scotland, the test subject's Ancient Briton ancestors lived in an area that was dominated by the newly arrived Gaels; whose Gaelic language, culture, and surnames (*MacDonalld*) they adopted.

How to confirm the McDonald Genetic Homeland

One must keep in mind that this is a scientific 'DNA' approach. The DNA does not lie and commercial ancestral Y-DNA testing of Donalds who live (preferably farm) in the area north of Glasgow City will confirm the paternal ancestral link with that area.

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