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on your Y-DNA results

Pinpointing the PATTERSON Paternal Ancestral Genetic Homeland

A Scottish Case Study

www.scottishorigenes.com



A stylized, handwritten signature in black ink, appearing to read 'Tyrone Bowes'.

Dr Tyrone Bowes
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Introduction

A 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 many individuals with 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 'Paterson' was living in close proximity to others with whom he was related but who assumed other surnames like Logan and Henderson. Given that hundreds of 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 DNA testing. Hence the surnames of one's medieval ancestor's neighbours will be reflected 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 thus revealing a '**Paternal Ancestral Paternal ancestral genetic homeland.**' The paternal ancestral 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 picked his surname surrounded by relatives who picked 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 Clans had a single founding ancestor, that's an estimated 1,500 Adam's 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 other 50% of people will have an association that has arisen as a result of what are called 'non-paternal events' usually a result of adoptions or infidelity. Since Scotland adopted a similar Clan based society these scientific findings can be applied to Scotland and people with Scottish 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 your recent Scottish ancestor was originally an Anglo-Saxon settler, Viking raider, or 12th Century Norman your DNA results will reflect earlier English, Welsh, French, and possibly Scandinavian origin. One must approach this process with an open mind!

Interpreting the Y-DNA test results

To identify a paternal ancestral genetic homeland one must first identify the surnames that continually appear as genetic matches. These recurring surnames are less likely to be a result of non-paternal events (adoptions/infidelity) and reflect the surname of a medieval ancestor's neighbour. Results for test subject 'Patterson' are shown in **Figure 1**. Upon commercial ancestral DNA testing the test subject Mr Patterson was a genetic match to others called Patterson or Paterson, who tested independently of him indicating that he has retained the surname of a 'Paterson-Adam;' who lived approximately 1000 years ago (when surnames became common).

Census data indicates that 'Paterson' is the most common spelling of this surname, and that Patterson/Paterson is associated with multiple locations within Scotland. Mr Patterson's genetically recurring surname matches (as identified in Figure 1) as a snapshot of his medieval ancestor's neighbours can be used to pinpoint where his Paterson-Adam lived. This is because those surnames (as revealed in Figure 1) will have arisen among a group of related males living in a very specific location, plot where they occur from early census data and one will reveal a common area, or where the Paterson-Adam lived.

Paterson is a Scottish surname and Mr Patterson's genetically recurring surname matches are to very common Scottish surnames, which together with Paterson are associated with multiple locations found throughout Scotland. It is not possible therefore using surname distribution mapping alone, to determine Mr Paterson's paternal ancestral genetic homeland. The many genetic matches to McKays, McDonalds, Chisholms, and McLeans indicate a paternal ancestral link with the Highlander Patersons, and not to the Patterson/Patersons originating further south within the Scottish Lowlands.

'Patterson' Case Study

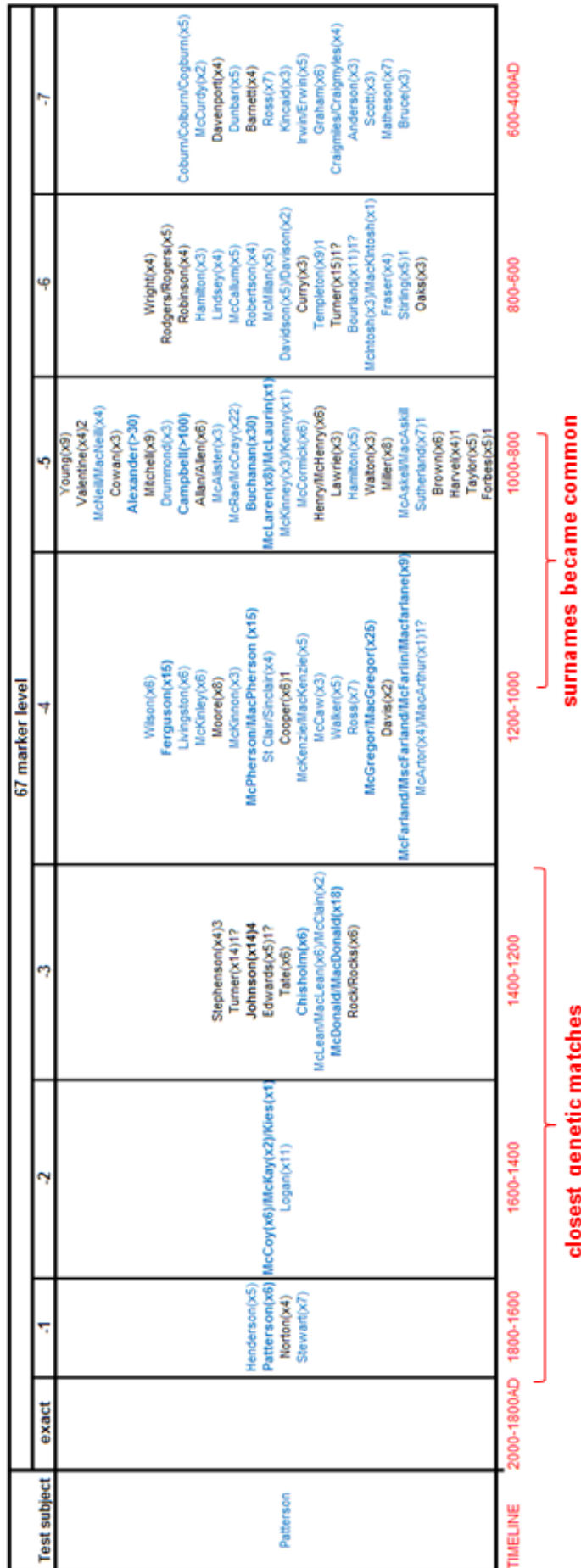


Figure 1: Reoccurring surname matches to test subject Patterson as revealed by commercial ancestral Y-DNA testing. Each surname appears at the earliest point at which it occurs e.g. the first match to another Patterson occurs at 66/67 markers but not all Pattersons/Patterson will match at that level. In brackets are the number of individuals with a particular surname that appear as a match. Only surnames that appear greater than 3 times are shown. Coloured font indicates the ethnicity associated with each surname; **Scottish**, black font indicates multiple ethnicities. The mutational time frame is based upon the results of the Valentine Case Study (www.scottishorigenes.com). ¹Multiple individuals from the same family recruited for Y-DNA testing, these are excluded from analysis. ²McGregors in disguise. ³Most matches occur at 12 markers and hence the shared ancestry may be coincidental. ⁴Johnson may be anglicised McKay (Son of John).

Pinpointing the Scottish Paterson Paternal ancestral genetic homeland

The method of using recurring 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. In the absence of a link to the land the process becomes much more challenging. One must therefore determine whether the Patersons had a link to the land by examining where farmers with this surname were found. The earlier in time that a link can be established the better as over time (particularly in the UK due to the industrial revolution) the link with the land is lost. There are many farmers called Patterson and Paterson in 1841 and they cluster in many groups spread throughout Northern Scotland, see **Figure 2**. This indicates that there were potentially many founding Highlander Paterson-Adams, who lived in many different geographical locations throughout the Scottish Highlands, who were almost certainly unrelated, and any one of whom the test subject may be directly descended. However, one can identify where the test subjects Paterson-Adam lived because his recurring surname matches as revealed by the Y-DNA test as a snapshot of his medieval ancestors neighbours will all share a common area of association, in essence they will localise to one particular cluster of Patersons.

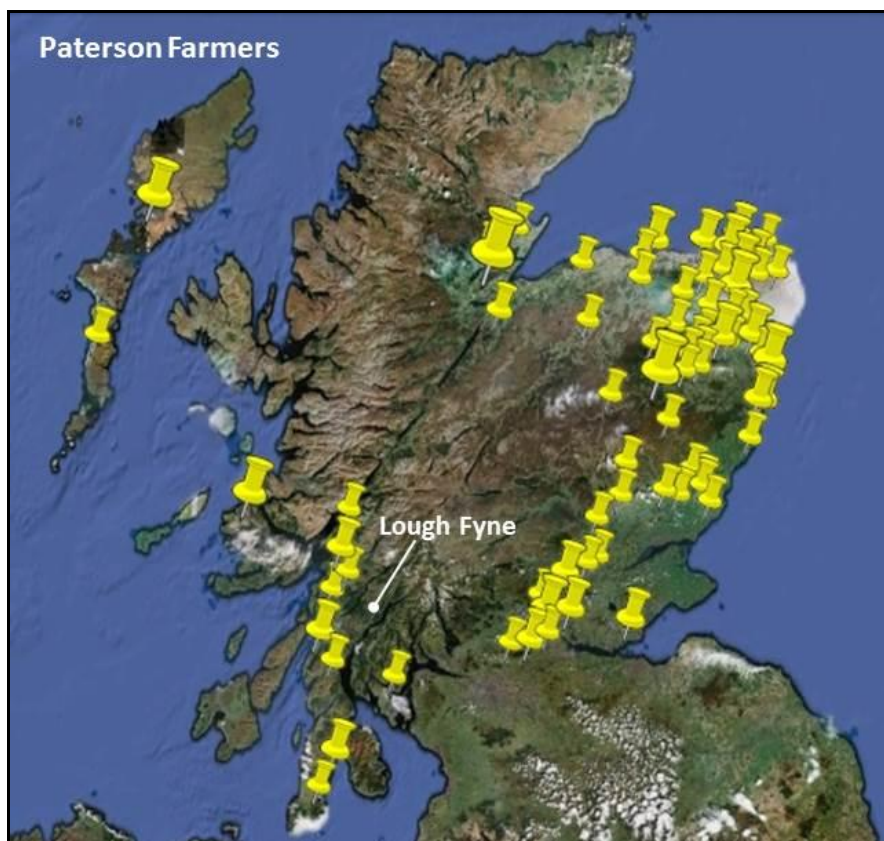


Figure 2: The 1841 Paterson farming communities north of the Clyde estuary and the Firth of Forth. By placing pins in the areas where Patterson and Paterson farmers were found in 1841, multiple locations are revealed where the Paterson surname clusters. Pins size is indicative of frequency. History records the northern shore of Lough Fyne as the almost mythological homeland of the Scottish Patersons.

‘Patterson’ Case Study

To explore where the test subjects Paterson-Adam lived one must also explore where farmers with the surnames that appear as his closest most frequent genetic matches occur within early census data. The County where these farming communities occur together will reveal where Mr Patterson’s paternal ancestral genetic homeland will be found. In 1841 the Paterson, Henderson, Stewart, Chisholm, McKay, McLean, Logan, and McDonald farming communities were found concentrated together in Ross and Cromarty in Northern Scotland, see **Figure 3**.

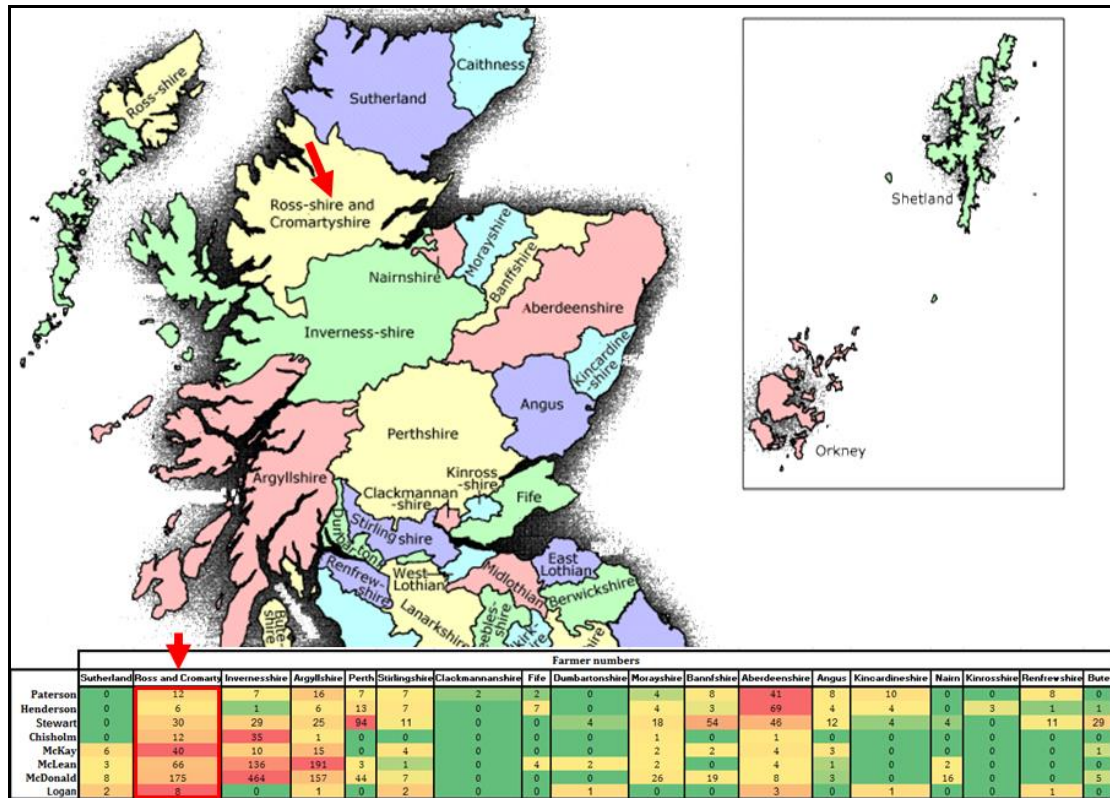


Figure 3: The 1841 farming communities associated with Mr Patterson’s Y-DNA results are associated with Ross and Cromarty in Northern Scotland. By examining where the farmers associated with Mr Patterson’s most frequent genetic matches occur in early census data a paternal ancestral link to Ross and Cromarty (red arrow) is revealed. It is within Ross and Cromarty that farmers with these surnames concentrate.

The paternal ancestral link to Ross and Cromarty can be further explored by examining where within the 1841 County of Ross and Cromarty the Paterson, Henderson, Stewart, Chisholm, McKay, McLean, McDonald, and Logan farmers lived. The area within Ross and Cromarty where these communities overlap or co-localise will pinpoint Mr Patterson’s paternal ancestral genetic homeland, see **Figure 4**. In 1841 farmers with the surnames found as Mr Patterson’s closest genetic matches were found clustered in closest proximity on the Black Isle, just north of the town of Inverness. The Paterson/Patterson farmers are found clustered near Knockbain in the centre he Black Isle and they appear surrounded by the farming communities with surnames reflected in Mr Patterson’s Y-DNA results.

'Patterson' Case Study

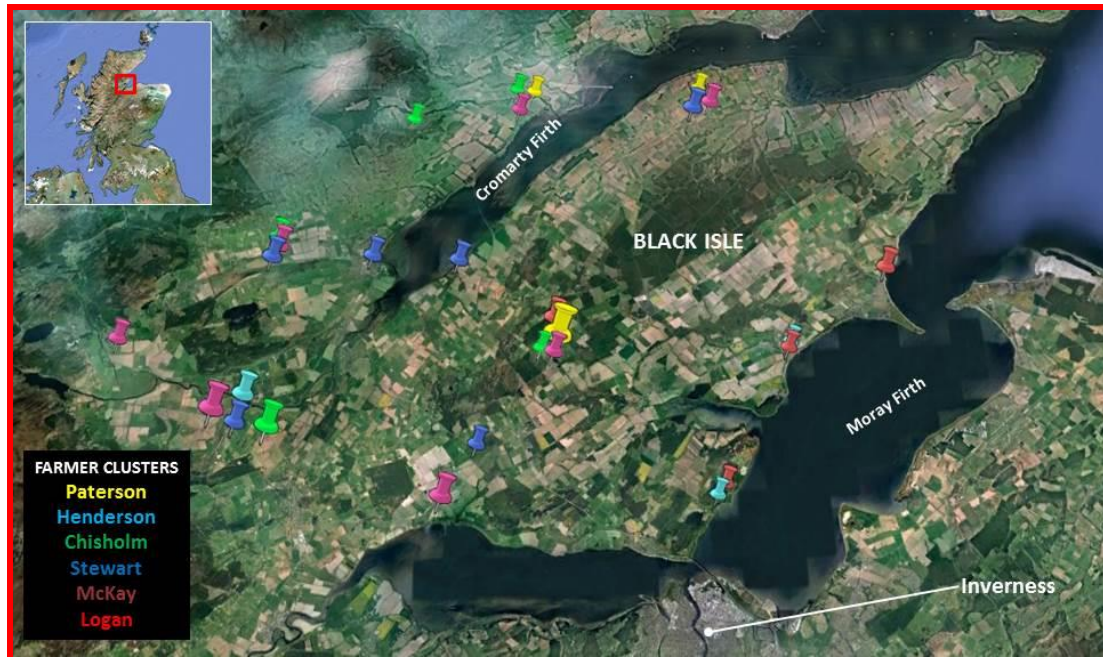


Figure 4: The farming communities associated with Mr Patterson's closest genetic matches cluster on the Black Isle just north of Inverness town. Early 19th Century census data reveals that the Paterson, Henderson, Chisholm, Stewart, McKay, and Logan farming communities of Ross and Cromarty were found clustered together on the Black Isle which constitutes a very small part of Ross and Cromarty. Pins size is indicative of farmer frequency. McDonald and McLean farming communities are also associated with the Black Isles but are not shown as they are far more common.

The Clan Territories of 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. Remarkably almost everyone with Scottish paternal ancestry will be genetically related to at least one of these prominent Clans or families that once ruled over one's paternal ancestral genetic homeland. Clan Paterson does not appear on this map, but their Genetic relatives the Chisholms (and Logans) are historically associated with the Black Isle and surrounding area, see **Figure 5**.

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Figure 5: Castle locations and their historically associated Clans and Families in the Black Isle in Northern Scotland. The Patersons did not dominate the Black Isle or its surrounding area, however Clan Chisholm dominated much of his area and appear as a genetically recurring surname match to Mr Patterson.

Mr Patterson's Paternal ancestral genetic homeland

Evidence for one's ancestors long association with an area can be found in its history, monuments, and placenames. However there are no placenames that refer to the Patersons, and only one that may refer to his genetic relatives; in Kilkey (McCoy's church), see **Figure 6**. However, historically it is known that Clan Loban (Logan) of the Black Isle have been associated with Drumderfit on Black Isle since 1372AD when the founder of Clan Loban/Logan was the solitary survivor of a massacre at the hands of the Frasers and McDonalds.

Mr Patersons Paternal ancestral genetic homeland is centred upon Knockbain on the Black Isle where his ancestors lived for 100's of years, surrounded by their genetic relatives the Hendersons, Stewarts, Chisholms, McKays, McLeans, McDonalds, and Logans, leaving their mark in the placenames and history of that area and in the DNA of the current inhabitants, and it is on the Black Isle where his distant relatives may still live.

'Patterson' Case Study

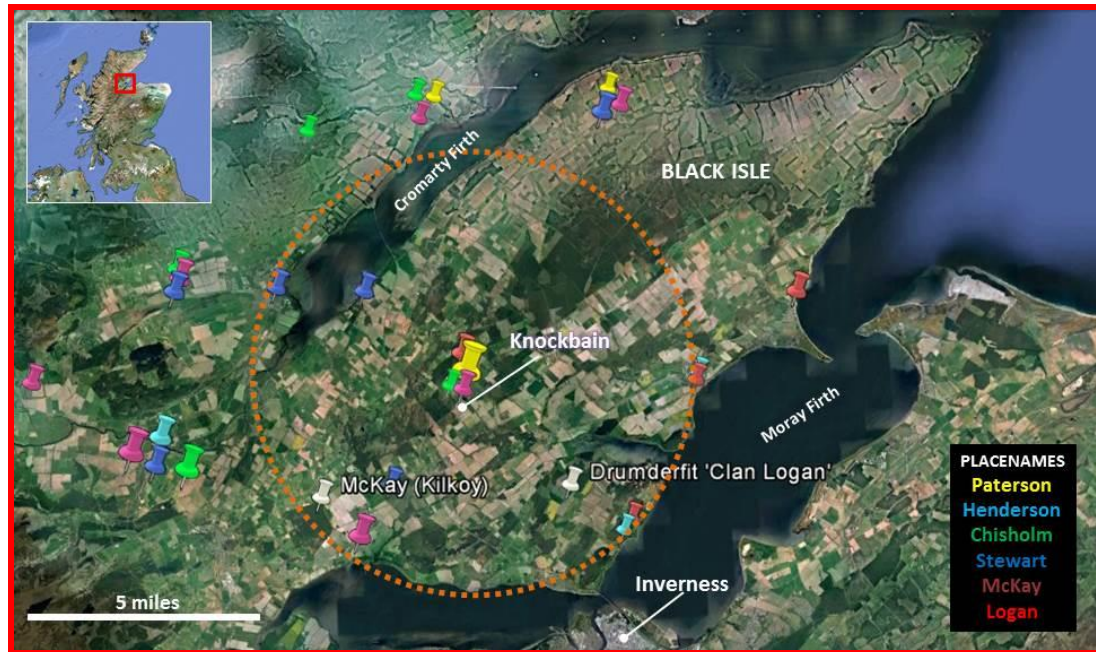


Figure 6: Mr Patterson's paternal ancestral genetic homeland. Mr Patterson's paternal ancestral genetic homeland (orange broken circle) is centred upon Knockbain at the southern end of the Black Isle in Northern Scotland. The Patersons lived surrounded by their genetic relatives.

Evidence of a Migration in Mr Patterson's Y-DNA results

The absence of placenames associated with Clan Paterson or their genetic relatives on the Black Isle, together with the finding that this areas most notable Clan, the Logans have their founding date as late as 1372AD may tentatively indicate that at least some of these Clans (and hence Mr Patterson's ancestors) were relatively recent arrivals in this area. If a migration has occurred then it too would be reflected in Mr Patterson's Y-DNA results.

Surnames became common in the 10th Century AD. When one examines the surnames that appear in Mr Patterson's Y-DNA results from this time period (see **Figure 1**) there are many matches to surnames associated with the Highlands and Islands of southwest Scotland, particularly with Argyllshire, which is a considerable distance from the Black Isle. The most notable Clans that appear in Mr Patterson's Y-DNA from the time period when surnames became common include the Campbells(>100), McGregors(>25), Buchanans(>30), McFarlanes(x9), and McLarens(x9). One also finds some interesting surnames like the McAskills (x3) and McArthurs(x5); surnames which are exclusively associated with Argyllshire. When one examines where these Clans appear on a Clan Map of Scotland and interesting observation is made! They all surround the northern shore of Long Fyne which history tentatively records as the homeland of Clan Paterson, see **Figure 7**.

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Figure 7: Mr Patterson's distant genetic matches reveal an ancestral link with Argyllshire. The recurring surname matches to Campbells, McGregors, Buchanans, McFarlanes, McArthurs, and McAskills corresponding to the time when surnames became common reveals an ancestral link to the area north of Lough Fyne which history records as the origin of the Patersons.

The Patersons of the Black Isle

Picts, Gaels, Anglo-Saxons, Normans, Romans, or Ancient Britons?

Mr Paterson's Y-DNA results demonstrate that when surnames became common in the 10th Century AD his Paterson-Adam lived in the area north of Lough Fyne. His Paterson-Adam lived surrounded by relatives who became Campbells, McGregors, Buchanans etc. At some point between 1200 and 1400AD his ancestors migrated north to the Black Isle where some of his ancestors picked new surnames like Logan and Chisholm. What is also particularly striking in Mr Patterson's Y-DNA results is the sheer number of Scottish surnames associated with his Y-DNA results. There are no distant matches to notable Irish, English, Welsh, Scandinavian, or indeed European surnames which would indicate Gaelic/Scots, Anglo-Saxon, ancient Briton, Viking, or even Norman ancestry. The exclusive Scottish nature of his genetically recurring surname matches and their association north of the Clyde and the Firth of Forth are indications that his ancestors were Picts.

How to confirm the Patterson Paternal ancestral genetic homeland

- Confirmation of the paternal ancestral link to the Black Isle, north of Inverness town will require the DNA testing of farmers with the Paterson surname who current reside in that area.
- Confirming that the Patersons originally migrated from Argyllshire sometime in the 14th Century will require the DNA testing of farmers with the Paterson surname living in Argyllshire (south of Oban town).

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