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tyronebowes@gmail.com

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I will not charge you.**

Case Study

Pinpointing the KELLY

Genetic Homeland

www.irishorigenes.com



A handwritten signature in black ink, appearing to read 'Tyrone Bowes', is written in a cursive style.

Dr Tyrone Bowes
Updated 26th May 2013

Introduction

A commercial 37 marker Y chromosome DNA test will potentially provide one with the names of many hundreds of individuals with whom one shares a common male ancestor. What often perplexes people is how one can match many individuals with different surnames? The answer is quite simple. Roughly 1,200 years ago one's direct medieval male ancestor, the first for example to call himself 'Kelly' was living in close proximity to others with whom he was related but who assumed other surnames like McLoughlin, Reilly, and Boland. Given that 1,200 years have passed since surnames were adopted, there will be many descendants of these individuals some of whom will today undergo ancestral Y-DNA testing. Hence the surnames of one's medieval ancestor's neighbours will be reflected in today's DNA test results.

In Ireland surnames can still be found concentrated in the County from which they originate. In this manner one can examine the individual surname distribution maps on the Irish Origenes website and pinpoint a '**Genetic Homeland.**' The Genetic Homeland is the very 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 ancestors left their mark in the placenames of that area and in the DNA of its current inhabitants. Since modern science can pinpoint a 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 have a single founding ancestor, that's an estimated 1,500 Adam's from whom one can trace direct ancestry. 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 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.
2. Often people are looking for their DNA results to trace back to a specific area. One must remember that the results reflect one's ancestor's neighbours from around 1,200 years ago. As a result if your recent Irish ancestors were originally 9th Century Viking raiders, 11th Century conquering Normans, or a 16th Century Planters, your DNA results will reflect earlier English, Scottish, Welsh, and possibly Scandinavian origin. I have estimated that only 60% of those with Irish ancestry are related to the pre-Christian Celtic tribes of Ireland. One must approach this process with an open mind!

Pinpointing the Kelly Genetic Homeland

To identify a Genetic Homeland one must first find the surnames that continually appear as genetic matches. These reoccurring surnames are less likely to be a result of non-paternal events (adoptions/infidelity) and reflect the surname of a medieval ancestors neighbour. Results for test subject Kelly are shown in **Table 1**.

SURNAMES THAT REOCCUR AS A GENETIC MATCH FOR TEST SUBJECT KELLY FROM 37 MARKER Y-CHROMOSOME DNA TESTING

Test subject	37 Marker Y-DNA test							
	37 marker level				25 Marker level			
	exact	-1	-2	-3	-4	exact	-1	-2
Kelly	-	Kelly/sKelly/Kelley(x20) ¹	-	McLaughlin/McGlothen(x4/x5) ² Bolin/Bowlan(x4) ³ McKenzie(x2) McDougall/McDougald(x2) Clark(x2) Riley/Reilly(x6) Martin(x2) Boles(x2) Williams(x7) Cope(x2) McDowell(x5) Paterson(x12)	McDonald(x4) Doherty/Daugherty/Dougherty(x25) Murphy/Muphey(x4) Murray/McMurray(x2) Mathison(x2) Wyatt(x7) Campbell(x12) McKinney/Kinney(x2) Wallace(x3) McKenna(x2) Donahue(x4) Byrne/Burns(x5) Macklin(x2)3 McKee/McKie(x4) O'Neill/O'Neill(x4) Connell/O'Connell(x2) McCullough(x2) Carroll(x2) Mitchell(x2) Hearl/Herald(x2) McMurtie(x15) Fitzhenry/Henry(x4) Carney/Kearney(x2) Bryan/Ryan/Roan(x4) ⁴ Conwell(x2) Forrest(x3) Smith(x4)	-	Millican/Milliken(x7) Grier(x11)	Corrigan(x4) Ward(x2) Slaven/Slavin(x7) Green/Greene(x2) Anderson (x2) McCracken(x2) McCall(x2) Larkin(x2) McSorley(x5) Mountain(x2) McLelland(x5) Black(x2) Carter(x3) Tucker(x2) McCarron(x3) Kennedy(x2) Brannan /Branum (x4) Partin (x4) Harp(x3) McKegney (x2)

Table 1: Reoccurring surname matches to test subject Kelly 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 Kelly occurs at 36/37 markers but not all Kellys will match at that level. In brackets are the number of individuals with a particular surname that appear as a match. Coloured font indicates the ethnicity associated with each surname, Irish, Scottish, English, black font indicates multiple ethnicities. ¹Only one Kelly appears as a close genetic match at the 37 marker level, most appear at the 12 marker level. ²McGlothen appears to be a variation of the more common McLoughlin. ³Spelling variants of Boland. ⁴Possible spelling variants of Ruane.

How many Kelly Clans?

Mr Kelly matches other people called Kelly (see **Table 1**) and this indicates that he is among the 50% of males who have retained the Kelly surname after an estimated 1,200 years (or since a Kelly Adam first picked his surname). However Kelly is the second most common surname in Ireland and this means that there were potentially many unrelated 'Kelly' Clans each with a distinct founding Kelly 'Adam' from whom the test subject could be descended. When one looks at where the Kelly surname is found in Ireland in 1911 (**Figure 1**) one can see 4 distinct areas; in Galway, Donegal, Cork, and Kildare where the Kelly surname originates.

Given that each Kelly Clan arose in geographically distinct locations, each Kelly Clan was surrounded by neighbouring Clans (some of whom they shared ancestry with) with surnames particular to each specific location. This means for example that Cork Kellys will have DNA matches to people with surnames like Sullivan and McCarthy that are associated with County Cork. In this manner Mr Kelly's surname matches

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can reveal which Kelly Clan he is descended from and where his 'Genetic Homeland' is situated.

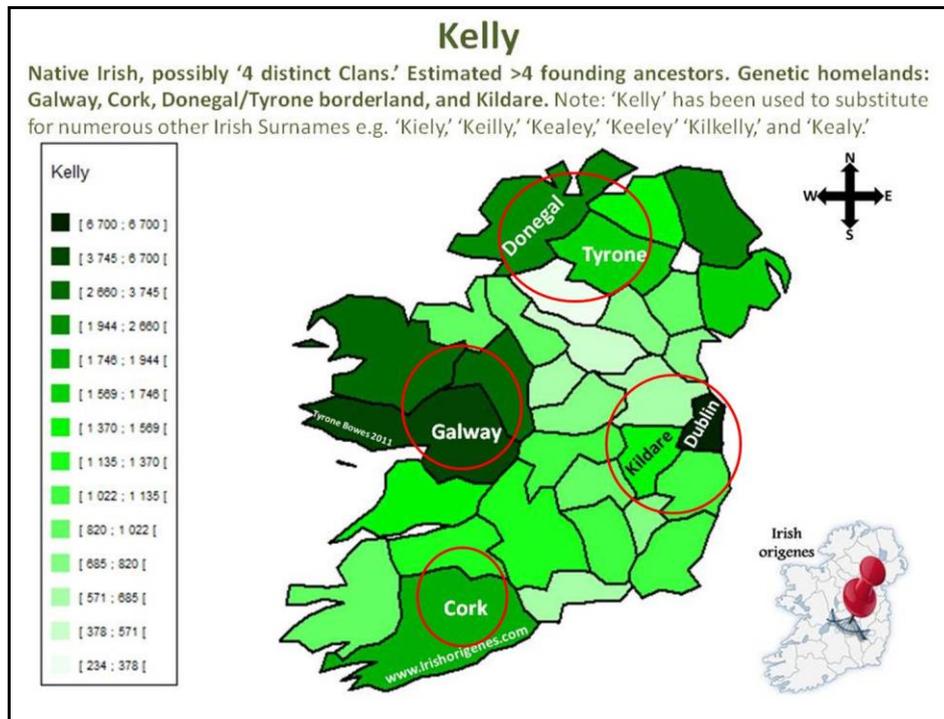


Figure 1: Distribution of the Kelly surname throughout Ireland in 1911. The surname Kelly is associated with 4 distinct locations (red circles) situated in Counties Galway, Cork, Donegal and Kildare. Mr Kelly is descended from one of these Clans.

The surname Kelly is associated overwhelmingly with Ireland. However, Mr Kelly matches many individuals with Irish and Scottish surnames. These Scottish surnames are representative of the close genetic link between Northern Ireland and Scotland. This close relationship began when the 'Scot's' of Northern Ireland migrated to Scotland in the 4th and 9th Centuries AD, this flow was reciprocated with the movement of Gallowglass Scots to Ireland from the 12th until the 16th Century and by later Planter Scots in the 17th Century. The occurrence of Scottish surnames also indicates that Mr Kelly's ancestry is associated with the northern part of the Island of Ireland.

When one plots where the Irish surnames that appear as genetic matches at the 37 marker level to Mr Kelly's are found in 1911, a link with County Mayo is revealed, see **Figure 2**. Interestingly there is also a close genetic link between Counties Donegal and Mayo (see Figure 1, Moore et al, The American Journal of Human Genetics, vol.78, 2006). Presumably the flow of Gaels from Donegal to the West of Scotland also involved a flow of people to County Mayo. This would also account for the large number of shared surnames in both locations including McLaughlin and O'Doherty which appear in Table 1.

To pinpoint Mr Kelly's Genetic Homeland one must stick pins on the surnames identified in **Table 1** in the area where they occur on the Irish Origenes Surnames of Ireland Map, see **Figure 3**. This process reveals a cluster of pins in northeast County Mayo close to the borders of Roscommon and Sligo.

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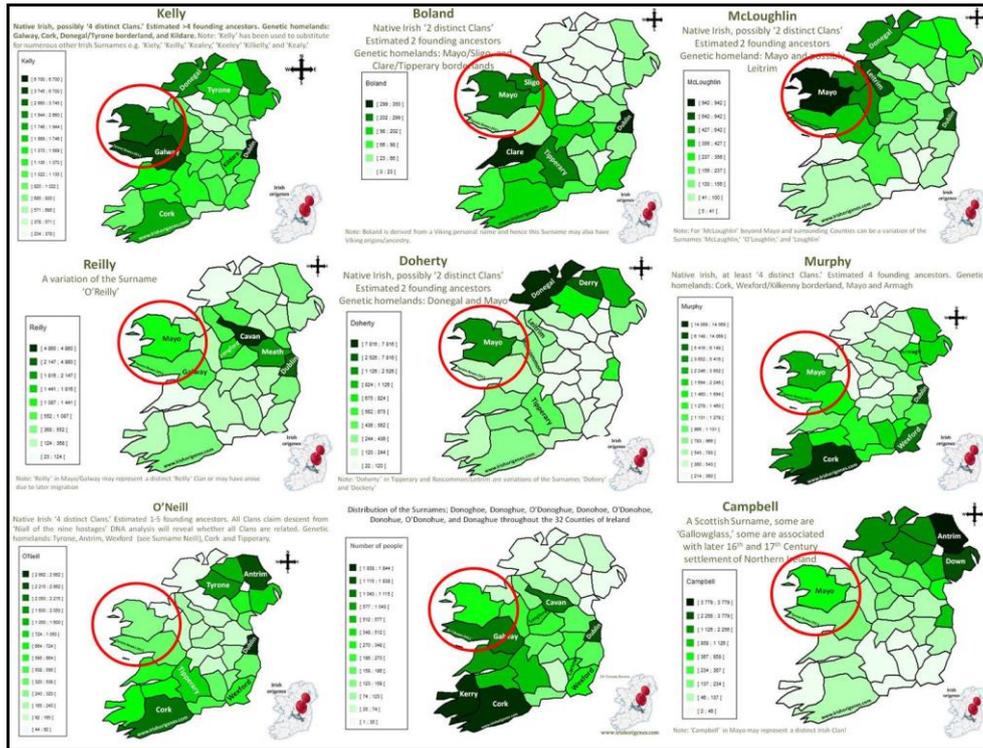


Figure 2: Mr Kelly's reoccurring Irish surname matches are associated with County Mayo. Surname distribution maps for the Irish surnames identified in Table 1 reveal an association with County Mayo (Red circle). Individual maps are taken from the Irish Origenes surnames database.



Figure 3: The Irish Origenes Surnames of Ireland map showing where Farmers associated with each surname cluster in 1911. By placing a pin on the surnames (as identified in Table 1) where they appear on the Irish Origenes Surnames Map an association with northeast Mayo is revealed.

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Mr Kelly's closest (Irish) genetic matches are to the surnames Kelly, Reilly, McLoughlin, and Boland. A closer examination of these farming communities within County Mayo should reveal where they overlap and hence reveal Mr Kelly's Genetic Homeland. The surname Kelly is particularly numerous but one does observe a large cluster of Kellys in east Mayo, see **Figure 4**. This cluster of Kellys is surrounded by Reilly, McLoughlin and Boland farming communities.

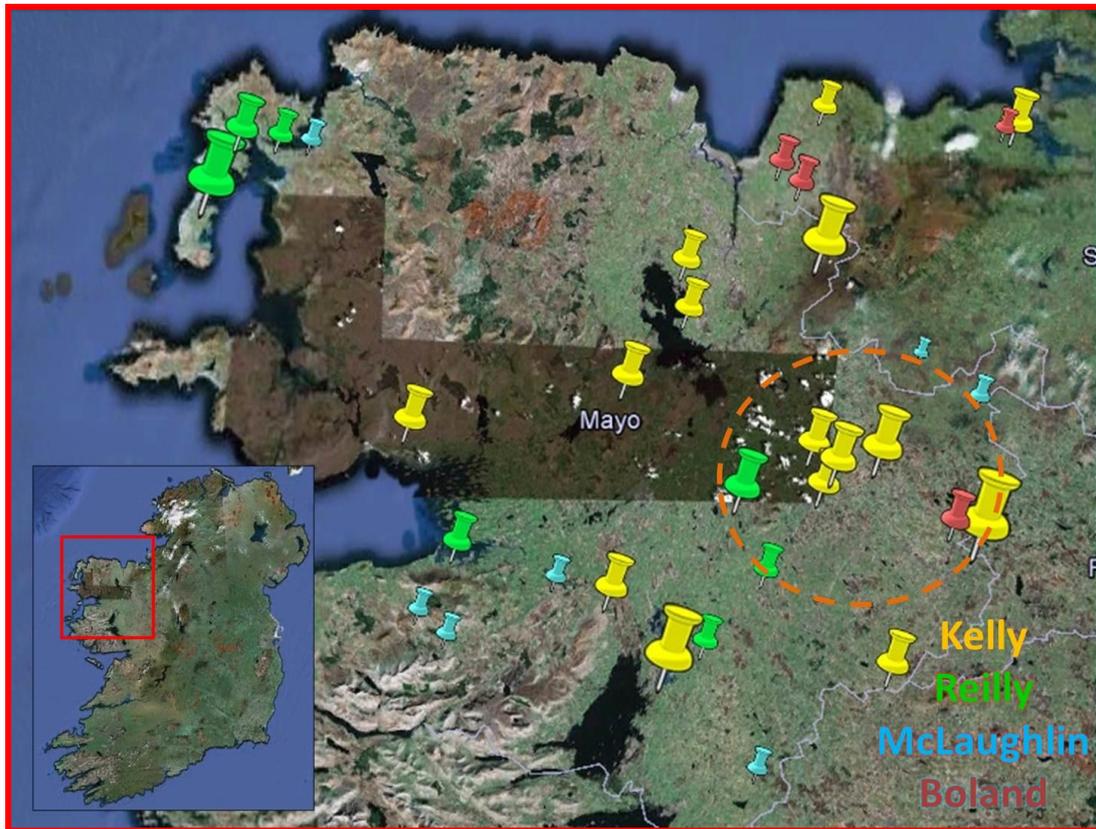


Figure 4: The Kelly, Reilly, McLoughlin, and Boland farming communities in County Mayo in 1911. Pins have been placed in the townlands where farmers (male heads of household) with each surname lived in 1911. All 4 farming communities overlap (**orange broken circle**) in east Mayo close to the borders of Sligo and Roscommon. At the centre of this area one finds a large cluster of Kelly farmers.

Evidence of one's ancestor's long association with the Genetic Homeland is often reflected in the placenames one finds there. At the centre of the cluster of Kellys which is situated between the towns of Swinford, Claremorris, and Ballyhaunis one finds Kilkelly townland which translates as Kellys church (or wood), see **Figure 5**. This is clear evidence of the Kellys long association with this area. To the south one also finds evidence of Mr Kelly's genetic cousin's in Ballymacloughlin (MacLoughlin's town) and Barnycarroll (O'Carroll's gap). While to the north one finds Castleroyan, which may be a reference to the surname Ruane, often spelt Ryan, Roan, and possibly Bryan which all appear as matches in Table 1.

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Figure 5: Mr Kelly's Genetic Homeland in east Mayo. Mr Kelly's Genetic Homeland is situated in the land between the towns of Swinford, Claremorris, and Ballyhaunis. It is here that one finds a large cluster of Kelly farmers close to Kilkelly (Kellys church or wood). One also finds placenames associated with Mr Kelly's genetic cousins the McLoughlin's (Ballymacloughlin), Carroll's (Ballycarroll), and Ruane's (Castleroyan).

The Irish Origenes Clan Territories of Ireland Map was reconstructed based on the location of castles and their historical association to a particular Clan or Family. Over 400 of the most prominent Clans and Families are detailed on this map and typically the Y-DNA results will reveal shared ancestry to one or more of these prominent Clans or Families. County Mayo was dominated by the Norman Burke's who employed the McDonnell/McDonald as Gallowglass. The McDonnell's appear as genetic matches to Mr Kelly, see **Figure 6**. The presence of the Normans also accounts for the Norman and English surnames that appear in Table 1. These matches represent either Gaels who took the surnames of their new masters or non-paternal events that have occurred between Gael and Norman since their arrival in 1169AD.

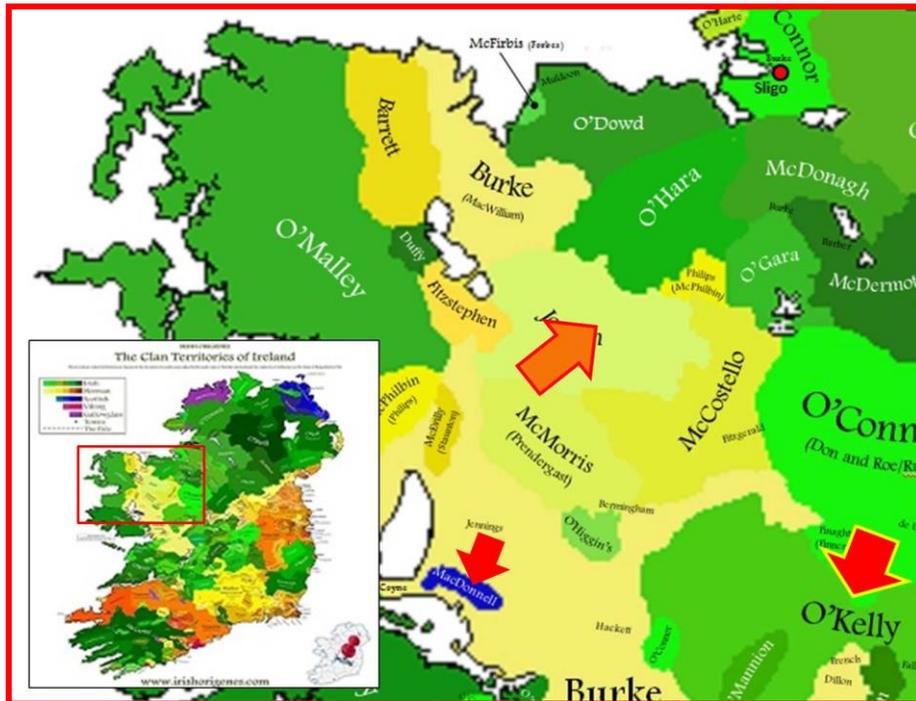


Figure 6: The Irish Origenes Clan Map of Ireland showing the medieval territories of County Mayo. Mr Kelly's genetic homeland (orange arrow) lies to the north of O'Kelly territory (large red arrow). To the west one finds the MacDonnell's (small red arrow) who appear as a genetic match in Table 1, and who were Gallowglass to the Norman Burke's.

How to confirm a pinpointed Genetic Homeland

To confirm the area around Kilkelly townland as Mr Kelly's Genetic Homeland will require the commercial ancestral Y-DNA testing of Kellys (preferably farmers) who still live there on the lands of their ancestors.

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