

# THE OLD IRISH GOATS OF SLIEVE GULLION, SOUTH ARMAGH, NORTHERN IRELAND

RAYMOND WERNER, MARCH, 2017

OLD IRISH GOAT SOCIETY





**SUMMARY.** *The Old Irish Goat Society has been in touch with Therese Hamill ,the Ring of Gullion AONB Officer for Newry Mourne and Down District Council, for some time, the point of issue being the management of the feral goat population as a resource that might exploit an Old Irish status. Under discussion was the possibility of rounding up goats and acquiring DNA samples. An invitation was extended for members of the Old Irish Goat Society to visit the area and to meet with Therese and local volunteers, along with making an assessment of the goats. Also invited was Dr. David Tosh, who has knowledge of the feral goats of Slieve Gullion. The visit took place between the 10<sup>th</sup> and 13<sup>th</sup> of February, 2017, and apart from meetings, members of the Society were able to assess the goats of Slieve Gullion as well as assess the population based at Camlough, and also attempted, but failed, to similarly make a study of the population based west of Slieve Brack and Croslieve. The outcome was that both the groups located had a distinctly Old Irish base, but that introgression had gained a foothold. It was considered, even so, that it would be possible to manage both populations as an Old Irish resource, given focussed removal and a continued watch on any further attempts to ‘dump’ unwanted domestic goat stock in the area.*

**KEY CONCEPTS.** *Slieve Gullion Forest Park. South Armagh. Slieve Brack. Cam Lough. Behaviour and population dynamics. Colour pattern analysis.*

## **THE FERAL GOAT POPULATION OF SLIEVE GULLION**



**HOME RANGE.** We were given the information that groups of females were to be seen around both Slieve Gullion and Glendeshia, and that these ‘herds’ were different. It was thought also that they were likely to roam further afield than these areas, but not so during the winter. ‘One or two’ goats have been seen up and on the mountain itself, leading to the suggestion that there could be ‘rogue animals outside the main herd’.

Local reporting is that ‘a herd’ comes down from Slieve Gullion to a field in Mullaghbane, this being between Slieve Gullion and Glendeshia.

Goats are also to be found on the Camlough Mountain, this being thought to be a different 'herd'. It is said that there has been a lot of trouble with these animals. Lastly, a herd has been reported in an area between Crossmaglen and Newry.

At our meeting with Therese and David, we studied a map of the local area together and goat distribution was pinpointed as being:

- Below the South-western summit of Slieve Gullion, and in the area of forestry and cut-over forestry between the bare mountain slopes and the Forest Road
- South-West of the Forest Road, and in the area marked 'Sheepfold' on the map
- In the forestry on the lower Eastern slopes of Slieve Gullion, and in the area of Killary Castle. Goats seen here may be mainly, if not all, males.

When we carried out our survey, we found that the Slieve Gullion goats were located in two distinct populations that were given the names 'The Forest Road nanny group' and 'The Aughadanove nanny group'.

The area in which the Forest Road goats are located is a long stretch of ground running North to South and adjacent to the Western slopes of Slieve Gullion itself. The goats were seen to be lying up during the middle part of the day on the open ground between the mountainside and the forest, but close to the tree-line itself. Below the forest is a large area of open ground originating from cut-over trees, now long grass with some low bushes, that is the area in which the goats feed during the earlier part of the morning and the late afternoon into the evening. Below the Forest Road itself, the land drops down to an area of thick scrub, merging into fields. No females were seen in this latter area, although it was exploited by males. Goats from this nanny group (identified by a distinctive female) were seen feeding on the slopes above the extreme Southern end of the Forest Road at around 11.00 a.m. on the 13<sup>th</sup>.

The area in which the Aughadanove goats were to be seen is at the same elevation as the range occupied by the Forestry Road goats, but a little further North. The Forest Road takes a right-hand curve uphill at the edge of the forest, this going uphill towards the mountain. Beyond this point, the upper ground is forestry, below which is abandoned farmland merging into scrub, this abutting onto fields. The Aughadanove goats were seen to occupy the abandoned farmland, where they lie-up, and to feed down into the scrub alongside the fields in the evening.

**BEHAVIOUR.** We were told that a large group of goats feed on the open ground above the Forest Road every morning. We visited this area in the early afternoon of the 10<sup>th</sup>, and following our meeting, and although we saw an impressive amount of sign, there were no goats to be seen below the tree-line. From this, we concluded that the Forest Road goats had fed here earlier in the morning, but were then lying-up in the forestry.

On the assumption that these goats would have a second feeding period at this location in the late afternoon, we returned to the area around 4.00 p.m., and at which time we were able to observe and photograph this group on the open ground. We scoped this area the following morning (the 12<sup>th</sup>) at around 9 a.m., and were able to see that the goats were indeed feeding between the forestry and the Forest Road as a part of an early morning feeding period.

Overall, the pattern of behaviour of the Forest Road goats is likely to be that they feed out onto the open ground in the early morning and into mid-morning, then lie-up during the middle of the day, following which they have second, and extended, feeding period from late afternoon and into the evening.

The Aughadanove goats were seen only once, this being in the late afternoon of the 12<sup>th</sup>, and when they were feeding avidly on scrub. This pattern of behaviour fits in with that of the Forest Road goats.

Local people are of the view that the winter doesn't start until the goats come down to lower ground, and that they act as weather barometers that takes them up to high ground during good and sunny weather, and down to the low ground when the weather is poor.

Our observations were carried-out in the late winter, it being noted that of the 33 males seen, 29 (88%) were forming a mixed group with females, whilst the remaining 4 males were associating in either a bachelor party of three or solitary.

**POPULATION DYNAMICS.** So far as could be assessed, The Forest Road goats consisted of a single nanny group of 19 females and not less than four kids. Also present were 24 males, meaning that at this time the Forest Road goats were a mixed group.

The basic unit in a feral goat population is a nanny and her kid, although a home range is occupied by a nanny group that comprises one or more family groups, the family group consisting of a matriarchal female, her adult young and their adult young, along with kids. In the case of the Forest Road Group there may have been two or three family groups, although this needs confirming.

Based on the foregoing, it is suggested that the feral goats of Slieve Gullion form a single population comprising two quite distinct nanny groups that are linked by a number of male groups, these providing the genetic interchange necessary to justify the concept of a distinct population.

It was assessed that roughly a third (31.6%) of the females in this nanny group were young, a third (31.6%) were middle-aged, and a third (36.8%) were fully mature. This would suggest that this particular group is stable, even successful. A ratio of one kid to every 4.75 females may seem low, although the kids were very hard to see in the long grass and low bushes, and it is likely that some kids went undetected.

The Aughadanove goats were studied in poor light, from some distance, and whilst feeding in and out of dense scrub including mature trees. It seemed, even so, to comprise a nanny group of not less than 4 females accompanied by males. This could have been either a family group or a nanny group, although a general viewing of the goats across the abandoned farmland in the middle of the day would suggest that several family groups may be involved.

The assessment of numbers by locals is around sixty, and the total number of goats seen during the visit is as follows:

Location	Females	Kids	Males
Forest Road	19	4+	24
Aughadanove	4+	?	5+
Below Forest Road	-	-	3
Above Aughadanove goats	-	-	1

This would give a total of not less than 56 animals, which is close to the overall assessment. Our search however was not exhaustive, concentrating on the areas where goats were said to be seen. It is more than possible, therefore, that other groups of bachelor males were not included in our study.

Interestingly, the general view of the Slieve Gullion Forest Park is that there are too many males in ratio to females, and this has been borne out by our survey, this suggesting a known ratio of 1.43 males to every female. Apropos of this, in some feral groups there may be as few as 0.25 males to every female, as males are more vulnerable (weather, rut, more adventurous,)and thus shorter-lived.

Kids had well-developed horn buds, suggesting that the normal time of kidding on Slieve Gullion is late January-early February.

#### **OLD IRISH ASSESSMENT FOR THE FOREST ROAD GOATS**

Of the 19 Forest Road females, it was assessed that over half (eleven or 58%) were basically of Old Irish type, and therefore warranted further study. A further four (21%) were debatable, two (10.5%) were queries, and another two (10.5%) were obviously showing signs of introgression.

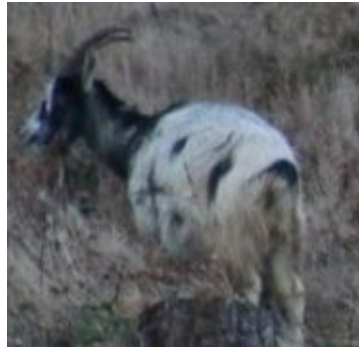
Of the 24 males, nearly half (41.7%) were of Old Irish type, 6 (25%) were debatable, 3 (12.5%) were queries, and 5 (20.8%) showed obvious signs of introgression.

Thus, of the 43 adult goats seen, half (48.8%) were of exploratory Old Irish type, and only 7 (16.3%) were very overtly mixed Modern-Old Irish in phenotype.

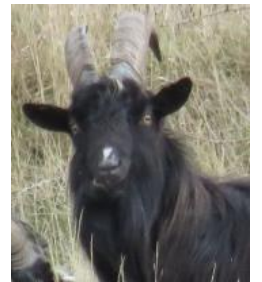
Obvious signs of introgression with Modern dairy goat stock are Swiss patterning and Saanen colouring (all white), although we are aware that the Old Irish goat included the White/tan colour pattern. None of the 19 Forest Road females had Swiss patterning, and there was only one white female, this animal showing other indications of Swiss characteristics. This would indicate that this group has not suffered irreparable crossing with domestic stock, and possibly the initial removal of a quarter (5) of these females, following which this nanny group is monitored carefully, could go a long way towards restoring an Old Irish phenotype.

The five females below are predominantly of Old Irish type, with small and pricked ears, and thick long coats. They are cobby, meaning deep-bodied and short-legged, and their necks are proportionately short.





There were also some very interesting Old Irish type males consorting with this nanny group:



On balance, the males showed more signs of introgression, with two goats having Swiss patterning and not less than four having a short coat. Old Irish males are always long-coated, and as a short coat is dominant in goats, and the Swiss breeds are short-coated in the males, the introduction of goats of dairy type into an Old Irish population will quickly result in the appearance of males with a short, smooth, and close coat.

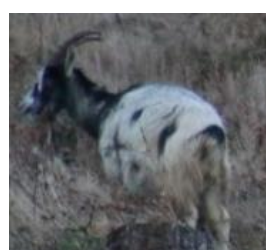
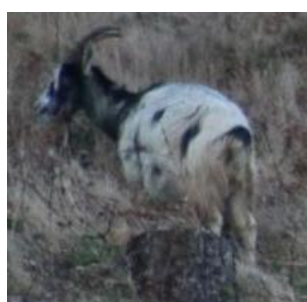


The male directly above is the most obvious example of introgression in these males. He is disproportionately thick-necked, has an robust head, short coat, and is very 'bony'. He is not typically of Swiss type, but represents an outcome of indiscriminate crossing that harks back to what is generally thought of as a 'scrub goat' - the likely future of the Irish feral goat generally. The other four goats fair a little better, although there is little that is obviously Old Irish about them.

### COLOUR PATTERNS DISCERNED IN THE FOREST ROAD GOATS

Photographing this mixed group proved difficult, the goats being at some distance on unhelpful terrain, and amongst camouflaging vegetation.

#### The females:











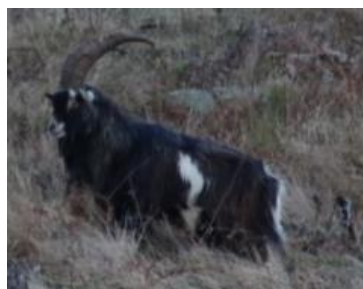
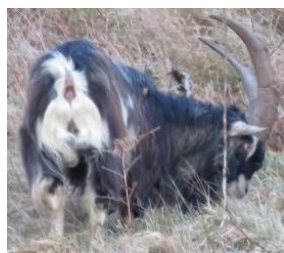
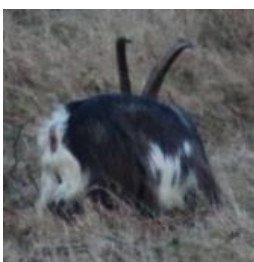




**The kids:**

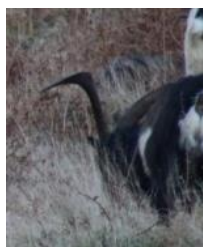
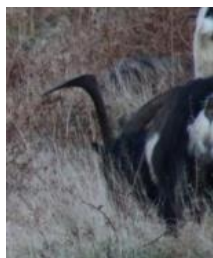


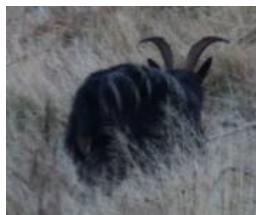
**The males:**













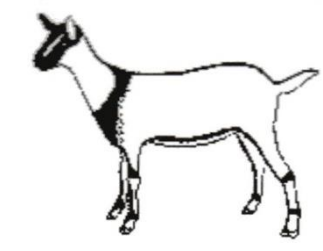


**Colour patterns discerned in the females.** These females represented six genetic colour patterns at the Agouti locus- White/tan, Grey pattern, Black or no pattern, Lightbelly, Mahogany and Bezoar. In addition, some females had the allele for Brown at the Brown locus, and two forms of spotting, these being the allele for Belted and the allele for Random Spotting. All these colour patterns and the spotting alleles are typical of the Old Irish goat, and it is assumed that the allele for Brown is known in the breed as well.

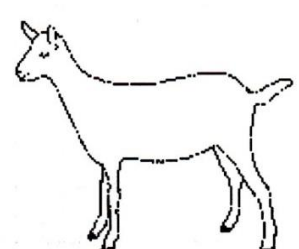
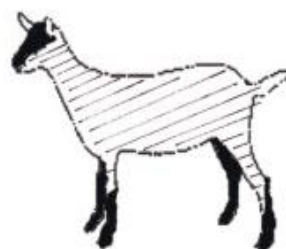
Mahogany pattern (right) was seen in one female, the coat being a tan/black roan (looking reddish, hence mahogany) with tan cheeks and upper ears. Black pattern is uniformly black (far right), hence its alternative name of 'No pattern'.



Lightbelly (right) is a black goat with tan (white to mahogany) distal markings affecting the inner ears, eye stripe, throat patch, belly, leg striping, rump and lower tail. In Bezoar (far right) the black is reduced to markings on the head, an eel stripe and often a shoulder stripe, belly line and striping on the legs. The rest of the goat is tan (white to Mahogany).



Grey pattern (right) is an all-grey goat apart from black legs and some form of patterning on the head. White/tan is an all tan goat, the tan ranging from white (as in the Saanen) to a rich tan (as in the Golden Guernsey). As All goats are basically black, with or without tan markings, the present writer has given this colour pattern the alternative name of 'All pattern' as oppose to black being 'No pattern



Brown in goats is very interesting as it is responsible for changing anything that is black on a goat to brown. Thus, an all- black goat will become all brown, or a goat with an otherwise black eel stripe will have a brown one instead. Brown and tan can often be confused, so a vital clue to discerning tan is that a goat cannot be both brown and black for obvious reasons.

Apart from genotypic colour patterns, there are phenotypic ones as well. This is because colour patterns in goats are co-dominant (two colour patterns can appear on the same goat), but with the proviso that any shade of tan will cover black, whilst white (dilute tan) will cover the other tans.

In the Forest Road females, two phenotypic colour pattern were present, these being Brown Lightbelly and Grey Lightbelly. In the former, the usual black coat of the Lightbelly colour pattern is replaced by brown due to the presence of the Brown allele at the Brown locus, whilst in the latter a cross between Grey pattern and Lightbelly results in a grey goat (grey being dominant to black) with the tan markings of the Lightbelly pattern.

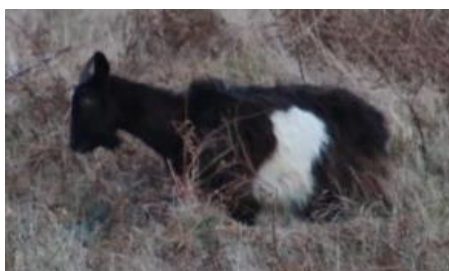
Spotting is represented by the Belted allele, which is dominant, and the Random spotting allele, which is a recessive.

In the former, a coloured animal will typically have a broad white belt, as found in Galloway cattle, although this may expand towards both the head and the rump in some animals. When black tends to concentrate on the forequarters, and white on the hindquarters, the term 'Bagot pattern' is used. Also, the belting may be reduced, so that the white is confined to a side patch. In Random spotting, the white is just that, as in white patches almost anywhere. There appears, even so, to be a tendency for white to commonly affect the head and legs.

As Belted and Random spotting are found on different loci, the combinations of white and coloured areas are legion.

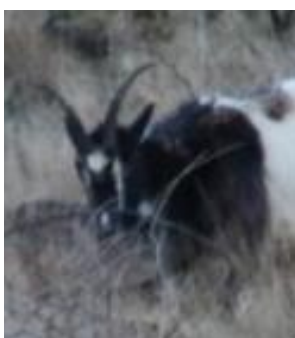
Additionally, females were noted to have the allele for Frosting, and in which the muzzle and upper ears are grey to whitish. This is due to roaning, and inherited independently of a colour pattern. Such is the case also for the Star allele, this giving a white forehead and tip to the tail.





Top left is a Lightbelly; middle top is a White/tan; far top right is a Grey pattern. Below, from left to right, are a Mahogany (note the tan cheeks); a

Bezoar pattern, and a Black pattern with spotting in the form of Belting. The White/tan female is a sandy colour, this indicating that she is heterozygous for this colour pattern



The two females to the left show the combination of a white forehead patch and tip to the tail. It isn't necessary to see the head of the goat to know that she has a white forehead, as the white on the tails tells its own story. The female to the right shows the combination of grey muzzle and upper ears that denote Frosting.

### Analysis of the colour patterns in females

White/tan	1 (5.3%)
Grey pattern	3 (15.8%)
Black pattern	8 (42.1%)
Brown	1 (5.3%)
Lightbelly	3 (15.8)
Grey Lightbelly	1 (5.3%)
Bezoar	1 (5.3%)
Brown Lightbelly	1 (5.3%)
Genotypically black	9 (47.4%)
Genotypically Lightbelly	4 (21.4%)
Belted	5 (26.3%)



Side patch	4 (21.1%)
Bagot	4 (21.4%)
Random spotting	1 (5.3%)
No white	4 (21.1%)
White	1 (5.3%)
Total for white spotting	14 (73.7%)
The Belted allele	13 (68.4%)
Random spotting	1 (5.3%)

Historically, the Old Irish goat is thought of as being black and white, whilst the Old Irish Goat Society has found that black and grey appear to be the typical colours. In this group of 19, nearly half these females were genetically black, although only around one goat in five could be described as grey. Fourteen females, or close to three-quarters of the total, had some form of white spotting. It should be mentioned at this point, and to muddy the waters to some extent, that a goat may be pied when having a minimum of white spotting, this sometimes amounting to a few white hairs in unobvious place, and thus virtually impossible to detect. This means that there may be more pied goats than have been accounted for. Of the pied goats, 92.9% are Belted, and 7.1% are randomly spotted, this being in keeping with the view that Belted is the most common white spotting allele in goats.

**Colour patterns discerned in the males.** Six colour patterns related to the males in the Forest Road mixed group, these being White/tan, Grey pattern, Black pattern, Lightbelly, Bezoar and Swiss pattern. The first five patterns have been discussed and illustrated in the section on females, the sixth- Swiss pattern- being shown to the right:

This pattern is black with white ears, face striping and muzzle; white lower legs, perineum and the underside of the tail. The belly is black rather than white as is found in Lightbelly. The face stripes are sexually dimorphic in that they form a broad and complete face stripe in females, but only a small eye-diamond in males.



This colour pattern typifies the British Alpine breed, whilst the British Toggenburg is brown with Swiss markings due to the presence of the brown allele at the Brown locus. Notably, this colour pattern is unknown in the Old Irish breed, and its presence in a feral herd is a sure sign of introgression with goats of Modern dairy type.

The males also had white spotting of both the Belted and Random spotting alleles, along with the Star allele.

### Analysis of the colour patterns in males.

White/tan	1 (4.2%)
Grey pattern	4 (16.7%)
Black pattern	15 (62.5)
Brown	-
Lightbelly	2 (8.2%)
Grey Lightbelly	-
Bezoar	-
Swiss pattern	2 (8.3%)
Brown Lightbelly	-
Genotypically black	15 (62.5%)
Genotypically Lightbelly	2 (8.2%)
Belted	6 (24%)
Side patch	1 (4.2%)
Bagot	-
Random spotting	6 (25%)
No white	8 (33.3%)
White	1 (4.2%)
Queried	2 (8.3%)
Total for white spotting	13 (54.2%)
The Belted allele	29.2%)
Random spotting	(25%)

Two thirds of the males were Black pattern, and around one goat in eight was a Grey pattern. A little over half the males had white spotting. A total of three males (12.5%) had a colour pattern associated with Modern dairy goats.

A comparison between the age structure in males and females showed the following:

Sex	Young	Middle-aged	Fully mature
Females	6 (31.6%)	6 (31.6%)	7 (38.8%)
Males	1 (4.2%)	12 (50%)	11 (45.8%)

This is of interest as it might have been expected to find that the greater proportion of males would have been in the younger age ranges, with the total for fully mature in females outweighing that for the males.

#### **Combined analysis for the colour patterns found in the Forest Road mixed group**

White/tan	2 (4.7%)
Grey pattern	7 (16.7%)
Black pattern	23 (53.5%)
Brown	1 (2.3%)
Lightbelly	5 (11.6%)
Grey Lightbelly	1 (2.3%)
Bezoar	1 (2.3%)
Brown Lightbelly	1 (2.3%)
Swiss pattern	2 (4.7%)
Genotypically black	24 (55.8%)
Genotypically Lightbelly	6 (14%)
Belted	11 (25.6%)
Side patch	5 (11.6%)
Bagot	4 (9.3%)
Random spotting	7 (16.3%)
No white	12 (27.9%)
White	2 (4.7%)
Queried	2 (4.7%)
Total for white spotting	27 (62.8%)
The Belted allele	20 (46.5%)
Random spotting	7 (16.3%)



It is worthy of note that when the sexes are combined, just over half of these animals are Black pattern, and around one goat in eight is Grey pattern. White spotting accounts for nearly two-thirds of the goats.

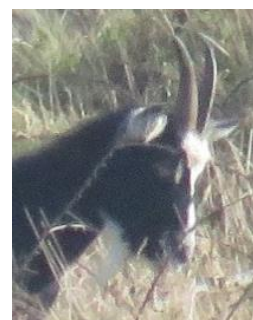
Given the foregoing, we can reconstruct the traditional colours of the Old Irish goats of Slieve Gullion, it being interesting that it was quite wide-ranging. Black with white spotting, fundamentally Belted, typified the Slieve Gullion goat, with Grey pattern and Lightbelly being less common but still well represented. Also present was Bezoar, although not at all common. Quite possibly brown was present early on, although the near absence of white is interesting in that White/tan is the top dominant colour pattern in goats, and with only two white goats with a suspiciously 'Swiss' look about them, it may be inferred that white in the Forest Road population stems from the introduction of domestic stock.

### **A FURTHER OBSERVATION RELATING TO THE FOREST ROAD NANNY GROUP**

At around 11.00 a.m. on the 13<sup>th</sup> February, we were able to observe a mixed group of goats on the high ground at the extreme southern end of the Forest Road. It wasn't possible to make a meaningful count, although around a dozen goats were seen as they fed along the heavily scrubbed terrain.

One female in particular, was identified as being a part of the Forest Road nanny group, meaning that the basis of this group was either the Forest Road nanny group in its entirety, or one of its family groups that had moved ahead of the main party during a feeding period.

The female in question, along with four of the accompanying males are shown below. These were photographed at long range.





Neither the white nor the chocolate coloured male (see above) were photographed when the Forest Road mixed group was observed on the previous day, although the Lightbelly male (bottom pictures, along with a Belted female that was likely to be a part of the Forest Road nanny group) was. This suggests that these Forest Road females, along with males that were consorting with them, fed Eastwards to mingle with a male group already at this Eastern point of this group's range.

#### **MALE GROUPS WITHIN THE FOREST ROAD GROUP RANGE**

The feral goats observed above the Forest Road were behaving quite typically for late winter. Males were still consorting with the nanny group, although some others had already moved away from the rutting assembly- post kidding- to establish bachelor parties that would move independently of the females during the spring and summer months. Part of this behaviour would be due to the different food preferences of males and females during the spring in particular.

Having observed the Forest Road mixed group at around 11.30 a.m. on the 12<sup>th</sup>, we returned to the area at around 3.30 p.m. to find that although the main group was still lying-up on the higher ground- this being out of sight- a male group of two fully-mature males and one younger male was feeding avidly amidst the dense scrub just below the road. Although they took note of us, and moved a little further downhill into the denser scrub, they were not too alarmed, this being due to a combination of factors that amounted to the fact that they were (1) confident that we could not approach them before they could make flight as necessary, and (2) they were well into a period of feeding that they were reluctant to break off from.

These three males could not be identified with any of the males seen with the nanny group earlier in the day.



### **THE AUGHADANOVE GOATS**

It would seem that the female feral goats seen to the North of the Forest Road at the point at which it turns East and uphill are a separate nanny group to the ones that have been under consideration. As indicated already, it wasn't possible to make an assessment of numbers, although there was at least one family group, accompanied by males, at the time of the observation. Overall, the impression was of white and mainly pied goats, and there were signs of introgression as well as examples of goats of largely Old Irish type.

The make-up of this mixed does highlight one aspect of feral goat behaviour with regard to males and females being in association; this being that when males are observed with females, there is one of two explanations as to why this should be. The first is that the males have joined the females, and are forming a discrete unit that is moving, feeding, and lying-up together for a period of time. The second is that the movement of the males has overlapped with the home range of the females, and thus they are consorting as if by chance, and in an association that is loosely based and will not last for any period of time. Obviously, the time of year will provide a clue as to which of these possibilities apply, a mixed group forming for the rut (late summer and into the autumn, continuing into the winter), and the males hiving off into bachelor parties for the spring and into the summer.

On our visit, we saw a party of three mature males, although, and as kids of the year generally leave the nanny group to join up with males as yearlings, it would have been perfectly possible to have seen an all-age male group.



One solitary male was seen during our visit, this being a white goat that was feeding avidly on holly, and which appeared to be recklessly indifferent to our presence, given that he was supposed to be a feral goat. He was located at the beginning of a farm track that led down past a barn to a farm (a dead-end, in other words), this track hiving off Northwards from a downhill road that connected with the one way road at its upper point, and connected also with the Eastern end of the Forest Road about halfway along its length.



The colour of this male would suggest a Swiss, particularly British Saanen origin, although there was nothing about his characteristics, apart, perhaps from colour, to justify this. Male British Saanens have small and distinctively shaped short heads (see right), and a dairy-goat conformation. The coat, also, is short and fine, even in males. Overall, and taken apart, the male seen had more the characteristics of an Old Irish goat than of a Swiss type dairy goat, although his 'jizz' hardly added up to support this.



His horns, were also of some interest. They are of a type that has been defined as 'curling' by the present writer, and form a tight three-quarter circle on virtually a single plane, only the tips tending to turn outwards. To date, this type of horn has not been identified in the Old Irish goat, although this is not to say that it does not exist in the breed.

### **AN INTERESTING LINK BETWEEN THE SLIEVE GULLION OLD IRISH GOATS OF THE RECENT PAST AND THE PRESENT-DAY FERAL GOAT POPULATION**

During our visit, we were introduced to Kevin Murphy, a local historian with an extensive knowledge of South Armagh. Over one evening, he enthralled us with an historical perspective of the area from the Tudor period onwards, whilst during a second he shared invaluable information with regard to the Old Irish goat.

When showed a copy of the Old Irish Goat Society's flyer, he immediately became animated at the sight of Grey Pied, one of our breeding programme females, saying that she was 'exactly like the goats we had', and 'I would have picked this goat out anywhere as one of the goats we knew'. Kevin's personal knowledge of the Old Irish goat on and around Slieve Gullion goes back to the 1950's, and not only did he pinpoint the type of the Old Irish goat of South Armagh traditionally, but offered up also an insight into the type of goats that the Pavees of Slieve Gullion were involved with when they were at the centre of the Irish travelling herd trade in goat stock to Britain.





Grey Pied is a very typical Old Irish female, showing the depth of body on short and sturdy legs, a refined, dished face, small pricked ears, and very thick coat that typify the breed. She has nothing in common with the type of the improved, Swiss-based, dairy goat, as can be seen by a comparison with the British Saanen female shown alongside her.



Despite the spectre of introgression, goats very much like Grey Pied have survived feral on Slieve Gullion to the present day, the legacy of the local goat stock that were either being turned loose, neglected to be rounded up, or left on the mountain as kids to run wild.

Their future without sympathetic management isn't, even so, assured. In fact if 'nature runs its course', the traditional Old Irish goat of Slieve Gullion will disappear over time, to be replaced by mongrelized goat stock that lacks the charm and historical, heritage and genetic value of South Armagh's native goat breed.



## SUMMARY AND CONCLUSIONS

**Numbers.** Workers on the ground have estimated that the total number of goats frequenting the Slieve Gullion Forest Park is around sixty. During our study we saw roughly the same number of goats, although we did not investigate the woodland area around Killary Castle, and where male groups have been seen.

**Home ranges.** Two were identified, both of which were located on the lower Western slopes of Slieve Gullion. Males peregrinate more widely, being seen on the upper reaches of Slieve Gullion and in the vicinity of Killary Castle, as already indicated. Nanny groups utilize abandoned farmland areas, cutover woodland and scrubby areas for feeding, and lie-up in and just above the woodland areas. Males were seen to feed in dense scrubland areas.

**Organization.** Likely to be a single population that consists of two distinct nanny groups, with male groups moving between these to provide an open system with genetic interchange.

**Sex ratio.** We were told that the population appeared to be top-heavy with males, and this was justified by our observations. Given that we could not do a reasonable count of the Aughadanove nanny group, we established that there were not less than 24 females in the two nanny groups and a total of close to 40 males generally.

**Viability of the Slieve Gullion feral goat.** The breakdown of age classes in the Forest Road nanny group was quite healthy, and given that the survival of the population as a whole depends upon the numbers and breeding success of nanny groups, this was encouraging. However, there were only 19 females in the Forest Road nanny group and upwards of 4 plus (although almost certainly encouragingly more) in the Aughadanove group. We cannot, therefore, be complacent.

**Old Irish status.** Around half the females in the Forest Road nanny group, along with a similar proportion of the males seen, were worthy of further investigation as being of Old Irish phenotype. Obvious signs of introgression were not as marked as we feared, although there were males with short coats and Swiss markings were present, along with White/tan that may originate from domestic crosses. Overall, however, there is cause for some optimism with regard to the possibility of restoring the Slieve Gullion goat to an Old Irish phenotypic status.

**What needs to be done.** It is suggested that further study is needed to establish:-

- The size and structure of the Aughadanove nanny group
- Confirm the total number of males in the area
- Complete the study on introgression by assessing animals individually

**The way forward in terms of preservation and usefulness.** It would be helpful to:-

- Devise a programme for (1) removing goats that are phenotypically of Modern Improved type and (2) show an unacceptable degree of introgression; along with moving on to manage the population as of Old Irish type by either preventing the 'dumping' of unwanted domestic stock or quickly removing any dumped goats that show up in the area.
- Gain recognition for these goats as being representative of South Armagh's original and only native/landrace goat breed
- Link the goats into tourism, and as a part of the natural history, history, heritage and former husbandry practice of the local area (
- Suggested cross border cooperation under LEADER supporting a festivals / goat art projects
- Find practical outlets for the goats, as in land management
- Publicise the breed, with interpretation boards, an exhibit on the breed past and present etc.
- Organize 'feral Old Irish goat' walks and talks, this to include a 'safari bus' trip to observe and talk about the goats close-to. There is an ideal opportunity here, as the Forest Road runs close by the main feeding ground of the Forest Road nanny group, and the Aughadanove goats can be observed from the Northern end of the same road
- Adopt the Old Irish goat as a combined symbol of the Forest Park, along with the Red Squirrel
- Maintain a 'goat park', this consisting of a small group of Slieve Gullion goats in an enclosure close to the visitor centre. This is a success story in the Galloway Forest Park, where visitors are able to get a 'feel' for the breed before encountering them on the hill
- Organize educational and study visits for students. Feral goats are easier to study than, say, Red deer, but offer all the opportunities associated with making a study of a large, herding ruminant.

**Further work.** This study forms part one of a more extended study of both the feral goat populations of South Armagh and an in-depth study of the history of the Old Irish goat in this county. An important aspect of this will be the fact that Slieve Gullion was at the very heart of Irish travelling herd exports of Old Irish goats to Great Britain over an extended period of time.

**APPENDIX: PHOTOGRAPHIC RECORD OF THE FOREST ROAD MIXED GROUP**





