

**Erratum: Geographical and management related factors affecting lambs of outwintered sheep along the west coast of Norway. A baseline study in the research project *Feral sheep in coastal heaths – developing a sustainable local industry in vulnerable cultural landscapes*.**

*Eva Kittelsen, MSc thesis, University of Bergen, institute of biology, August 2008*

The author wishes to correct the following errors:

*On page 12, line 8, the correct text is:*

*Op. cit.* Diemont, Haaland and Kaland 2002.

*From page 16, line 10 to page 20, the correct text is:*

#### 2.1.1 Horgo

Horgo is one of the 667 islands that constitute Austevoll municipality in the county of Rogaland. The bedrock consists of granite, granodiorite, diorite and monzodiorite. Horgo has no roads and no inhabitants, but it has a single cottage and some boat houses which are in use. There is a joint ownership of the ANBOS herd here, which consists of about 100-120 sheep. The herd is free roaming, but excluded from the cottage and its near surroundings by fences. Six of the animals are rams, and these graze with the rest of the herd year round. Around 110 lambs were born in 2007. The lambing was at the beginning of April. Horgo has a long history of grazing by ANBOS and a tradition of heather burning dating back at least 50 years. *Ovis aries* (Norsk kvitsau), cattle and horses were kept on infields until the early 1960s. The area available to the sheep is 200 ha. There are no other domestic animals on the island today, and no wild large herbivores.

#### 2.1.2 Lurekalven

Lurekalven is an island northwest of the island Lygra in Lindås municipality, north in Hordaland county. The bedrock consists of dioritic/granitic gneiss and migmatite. There is no connection to the mainland, and no roads, constructions or inhabitants. A grass-dominated area that used to be the infield of a farm during the medieval times is present. The island is long and narrow, stretching southeast - northwest. The area available to the sheep is around 100 ha.

#### 2.1.3 Tangane

Tangane is the northwestern part of the island Lygra in Lindås municipality, north in Hordaland county. The bedrock at Tangane consists of dioritic/granitic gneiss and migmatite. Lygra is accessible by road from the mainland, and the area called Tangane is located at the tip of the island, enclosed by a fence southwest to northeast across the island. The sheep are owned by the same farmers as the Lurekalven herd. There are trails for recreational use through the heathlands. The area available to the sheep is about 40 ha.

#### 2.1.4 Hille

Hille is an island in Gulen municipality, in the southern part of Sogn og Fjordane county. The bedrock consists of dioritic/granitic gneiss and migmatite. The production is Debio certified. Two families are living on the island all year round. The herd has one owner but is socially divided in two groups that according to the owner use the landscape quite differently in that one herd keeps to a higher extent to infield

pastures, while the other prefers the more scarce outfields. They are around Since their grazing grounds overlap and cannot be mapped, they are treated as one herd, and the area as one study site. The area available to the sheep is 350 ha. No other animals are usually present on the study area.

#### 2.1.5 Tungodden

Tungodden (fig. 4) is a peninsula south in Gulen municipality, Sogn og Fjordane county. The bedrock is conglomerate and sedimentary breccia. There is a joint ownership of the Old Norwegian sheep herd at Tungodden. On the northern border of the grazing area, a fence and a small lake delimits the flock from the main island. The ANBOS farming started here with 60 individuals in 2005, and is still building up. In 2007, 120 adults were grazing on the island, with 80 lambs born from 25<sup>th</sup> April. On Tungodden, the males are kept separated from the flock during autumn and are set out in early December. The area available to the sheep is around 320 ha, and includes a small area of previous infield. No other animals graze here, except some wild Red deer (*Cervus elaphus*).

#### 2.1.6 Hågøy

Hågøy is an island in Gulen municipality, Sogn og Fjordane county. The bedrock consists of conglomerate, sedimentary breccia, greenchist and amphibolite. The stock is owned by the same group who owns the sheep at Tungodden. The ANBOS farming started here in 2001, and for the last two years it has had a stable size of 140 adults all year and around 70 lambs during the summer season. The lambs were born from 10<sup>th</sup> April. The males are grazing with the flock all year. The area available to the sheep is around 210 ha and is entirely composed of outfield areas. No other grazing animals are present here.

#### 2.1.7 Jøsok

Two owners have sheep which share the same area at Jøsok, and the sheep are thus considered as one herd in the study. The bedrock consists of gneisses, migmatite and amphibolite. Jøsok is situated at the south-eastern part of the island Gurskøy. The herd roams freely on the whole island, but uses only a certain inland area, which is thus considered as the study area. The herd consists of 80 females with lambs. Gurskøy covers both Sande and Herøy municipality in Møre og Romsdal county, but the study area is in Herøy municipality. The study site is around 615 ha. No other domestic animals are present in the outfields of the island, but Red deer (*C. elaphus*) are common.

#### 2.1.8 Nerlandsøy

Nerlandsøy is located in Herøy municipality, Møre og Romsdal county. The bedrock at Nerlandsøy consists of gneisses, migmatite and amphibolite. The herd was established in 2002, and has built up from an initial 20 females; in the study period it consisted of 45 ewes, 2 rams and 65 lambs born from 16<sup>th</sup> April. The whole island except the inhabited areas, which are fenced out, is available to the sheep, but they do not utilize the whole island. Delimiting the study area was done based on GPS data from collars on some of the sheep, provided by the owner through Telespor (Telespor AS 2008). The area which is mainly utilized is around 780 ha. No other domestic animals graze the study area, but Red deer (*C. elaphus*) are common.

#### 2.1.9 Intian

The island Intian is located east of mainland Frøya in Frøya municipality, Sør-Trøndelag County. The bedrock here consists of granite, granodiorite and marble. There is no road to this island. No one lives there today, but it was previously inhabited, and some houses on the island are frequently used for recreation. Sheep, cattle and horses were kept on the island in earlier times. The herd consisted of 56 ewes and 62 lambs in the study period. Lambs were born from 25<sup>th</sup> April. The rams are not grazing with the rest of the herd. The herd is moved between three different enclosures, of which the total area available to the sheep is about 40 ha, and consists mainly of infield areas. All three areas are included in the study area. No other animals graze on the island today.

#### 2.1.10 Uttian

Uttian is located east of mainland Frøya in Frøya municipality, Sør-Trøndelag County. The bedrock is granite and granodiorite. Two persons own the herd. There is a road from the main island of Frøya to Uttian, which means the island is easily accessible from the mainland. A fence across the island separates the herd from the inhabited areas in the summer, but in the winter the fence is taken down. The herd stays away from the developed parts also in the winter. Up until 2007 the rams have been with the rest of the herd. The herd has built from 15-20 animals 15 years ago at Værøya, an adjacent smaller island. Three or four years ago, when it consisted of 20 adults and 15-20 lambs, the herd was moved to Uttian, and had in 2007 built up to 102 sheep that had 95 lambs, starting from the end of February. Up until 15-20 years ago, Norsk kvitsau and cattle were kept in the infield areas of the island, but no other animal graze here today. Only the area utilized by the sheep is included as a study area, this is around 140 ha.

#### 2.1.11 Mainland Frøya

Two herds share the same area at the main island Frøya in Frøya municipality, Sør-Trøndelag county. The bedrock consists of gneisses, migmatite and amphibolite. The area is delimited by water and fences. The two herds came to the area at different times, are socially segregated and thus use different areas of the available area, but they are not separated by fences. They have been treated as two herds and the area as two localities. No other domestic animals graze in the study areas, but Red deer (*C. elaphus*) are common. ANBOS farming has not been practiced in the areas before, but another breed, the Fro sheep, were common on Frøya up until 1960-80. Cattle and horses were also kept.

The herd grazing the southern parts consists of 86 adults with lambs that were born from 17<sup>th</sup> April. Rams are not kept with the herd after mating, but taken away quite soon, in January. The herd has been under establishment, and has increased from 20 individuals 5 years ago to 86 individuals in 2007. The area available to the sheep is around 240 ha. This study site is called Frøya1 in the text and figures.

The herd grazing on the northern parts was established in 1991, and build up to approximately 60 ewes in 2004, which it has remained at since. In 2007 there were 62 ewes. Lambing started 15th April, and 66 lambs were born. The area available to the sheep is about 100 ha. This study site is called Frøya2 in the study.

#### 2.1.12 Rottingen

Rottingen is an island north of mainland Frøya in Frøya municipality, Sør-Trøndelag County. The bedrock consists of granite and granodiorite. No one lives there, but the family of the owner has a house there and spends weekends and holidays on the

island. The herd has grazed the island since 1968, and in the same area the breed Cheviot was kept from 1957 to 1987. Before this both sheep, cattle and horses were kept, while the use paused from 1953 until the father of the current owner bought the place. The farming product (meat) produced on Rottingen today has been Debio certified since 1994. In 2007, the herd consisted of 141 adult outwintered ewes and 184 lambs during the summer season. The 8 rams are with the herd only until early summer. Lambing was in late April to early May. The area available to the sheep is 130 ha. No other animals graze on the island today.

*Page 25, line 7 to line 13:*

Table 1 gives an overview of the parameters that were considered important for each class (the reason for identifying this as a separate class), and of characteristics making the distinguishing of features in the different classes possible. A more thorough discussion of these choices is given in Appendix C. A list of the classes' expected classification types following the common classification system for nature in Norway, developed by Fremstad (1997) are given in Table III in Appendix B.

The land cover classes I used were:

*Page 31, line 18:*

The number 3 after the word "test" is a mistake.

*Page 36, line 5:*

The correct table number is Table VI.

*Table 5 and table 6, page 37 and 38:*

The word *column* is wrong, the correct is *rows*.

*Figure 9, page 37:*

The missing label is Nerlandsøy.

*Figure 10, page 38:*

The missing labels are Nerlandsøy and Tungodden, respectively.

*Appendix A:*

For all maps, the title *Land cover maps* is correct.

*Appendix B, page XVII:*

The correct table number is Table IV.

*Appendix B, page XVIII:*

The table on this page should be deleted.

*Appendix B, page XIV:*

The correct table number is Table V.