A new record of taiga shrew (*Sorex isodon* Turov, 1924), from Sogn og Fjordane, Norway

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Abstract: The taiga shrew (*Sorex isodon*) has been known to be present in Norway since 1968, initially in the counties of Troms and Hedmark, and, more recently, in Sogn og Fjordane County. In the summer of 2011 a dead specimen was found outside its known distribution area in Sogn og Fjordane County, at an altitude of 800 m. This raises some questions, since the taiga shrew is known as a lowland species which prefers dense vegetation. One explanation for its presence at a high altitude is that it was dropped by a bird of prey after being caught at a lower altitude.

Keywords: Sorex isodon, taiga shrew, dusky shrew, distribution, Norway.

The known distribution area of the taiga shrew (*Sorex isodon*) extends from south-eastern Norway, northern Sweden and Finland through Siberia to the Pacific coast of Russia, Sakhalin and the Kuril Islands in the Sea of Okhotsk. As well as the preferred English name, taiga shrew, it is also known as dusky shrew (Wolsan & Hutterer 1998, Sulkava 1990, Sulkava 1999, Wilson & Reeder 2005). Records from Norway were previously limited to one location in the north of Troms County and locations in Hedmark County, close to the Swedish border (Sulkava 1999, van der Kooij & Solheim 2002a, 2002b, 2002c) (figure 1). Recently, several zoologists have recorded taiga shrews in Sogn og Fjordane County, further west in Norway (J. van der Kooij, T.C. Michaelsen and I. Byrkjedal, personal communication).

On 27 July 2011 a shrew was found on the path to the summit of the Tjuatoten, a mountain close to Dragsvik in Sogn og Fjordane County (61˚13'42 N, 006˚31'12 E) (figure 2). It was found at 800 m above sea level, on a slope where the vegetation was in transition from

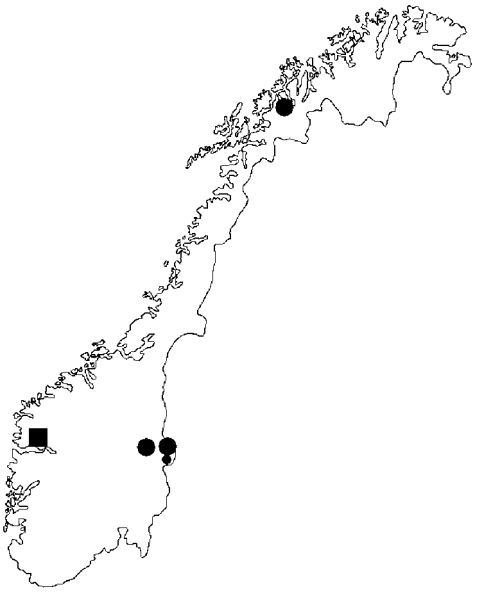

Figure 1. Distribution map of taiga shrew in Norway. Circles: localities known from previous records. Square: locality of the record from Dragsvik, to the north of the Sognefjord.

Figure 2. Locality of the record of the taiga shrew in Dragsvik. *Photo: Ingrid Margry.*

Figure 3. Preserved skin with the dark colour of the back gradually changing to a lighter grey-brown belly. *Photo: Ingrid Margry.*

forest to open area. The animal was remarkably large for a shrew and long hairs at the end of the tail showed it was a juvenile. The dark colour of the back gradually changed to a lighter grey-brown belly and the tail was clearly bicoloured (figure 3). The sex could not be determined. The animal was not quite fresh but has been preserved in alcohol.

Some measurements of the body and skull are listed in table 1 and compared with other taiga shrews and with the common shrew (*Sorex araneus*). The unicuspids gradually decrease in size and also the smallest unicuspid has a dark top (figures 4 and 5). The position of the foramen mentale of the mandible is a little posterior to the front edge of the first molar M_1 (figures 5 and 6). The rising part of the processus condylicus is much longer than the part that protrudes laterally (figure 7). The gradual change of colour on the flank, the length of the

Table 1. Body and skull measurements (mm) of the taiga shrew found at Dragsvik, Norway, compared with other taiga shrews and with common shrew. Measurements are according to van der Kooij (1999).

	Taiga shrew *Sorex isodon*	Taiga shrew *Sorex isodon*	Taiga shrew *Sorex isodon*	Taiga shrew *Sorex isodon* (*n*=?)	Common shrew *Sorex araneus* (*n*=?)
	Specimen from Dragsvik	Sulkava (1990) * = Ivanter (1976) ** = Skarén (1979)	van der Kooij (2002b)	van der Kooij (1999)	van der Kooij (1999, 2002b)
Total length	116	104-128 (*n*=19)	102-117 (*n*=8)		
Length of the tail	48.5	43-52 (*n*=19)	42-52 (*n*=9)		34-56
Head body length	67.5	59-83 (*n*=19)	56-74 (*n*= 9)		40-87
Hindfoot without nails	15	13.1-14.6 (*n*=19) 12.0-15.3 (*n*=?)*	13.7-14.5 (*n*=9)		10-14.5
Hindfoot with nails	16		15-16 (*n*=4)		
Length of the ear	9		6.4-8.8 (*n*=?)		6.2-8.0
Length of hairs on the end of the tail	8.5		1-9 (*n*=9)		
Condylobasal length	20.0	19.0-20.3 (*n*=15) 18.6-20.6 (*n*=?)**		18.6-20.6	17.7-20.2
Length tooth row I^1-M^3 // upper tooth row	9.08	8.5-9.2 (*n*=19) 8.0-9.4 (*n*=?)**		8.0-9.4	7.8-9.1
Width of the palatum	5.08	5.0-5.8 (*n*=19)		5.0-5.8	4.5-5.9
Width of the skull	10.25	9.2-10.2 (*n*=16)		9.4-10.3	9.0-10.3
Length tooth row I_1-M_3	8.31	7.8-8.5 (*n*=19)		7.8-8.5	6.6-8.7
Length of mandible	10.16				8.9-10.3
Special length of mandible	7.89			7.7-8.5	6.9-7.9
Height of the mandible	4.84	4.5-5,0 (*n*=19) 4.2-5.1 (*n*=?)**		4.2-5.1	4.1-4.9

hind feet and the characteristics of the skull confirmed the species as a taiga shrew (Sulkava 1990, van der Kooij 1999, van der Kooij & Solheim 2002b, Twisk et al. 2010). The specimen is now in the author's collection.

It is remarkable that this specimen was found in open land at a relatively high altitude. So far, taiga shrews have almost exclusively been found in moist and dense lowland vegetation. A good soil layer is a prerequisite. With their relatively broad front legs taiga shrews are considered to be real diggers (Sulkava 1990, van der Kooij & Solheim 2002a, 2002c, Twisk et al. 2010). During preparation of the skin of the Dragsvik specimen, haemorrhagic patches were noticed, especially on the left side of the body. The skull appeared to be broken in several places. These injuries suggest it is possible that this animal was taken by a bird of prey, and was dropped after a disturbance at this high altitude location.

In Norway records of taiga shrews are scarce, with isolated populations scattered over different parts of the country. The assumption is that the taiga shrew has a mosaic distribution in Norway with small local populations which may be vulnerable to extinction (van der Kooij & Solheim 2002a).

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Figure 4. Skull from the ventral side, clearly showing how the unicuspids gradually become smaller and also the smallest unicuspid has a dark top. *Photo: Ingrid Margry.*

Figure 5. Skull, showing the same characteristics on the unicuspids from the right side. *Photo: Ingrid Margry.*

Figure 6. Right mandible with the backside of the incisor which reaches not further than the backside of the canine C_1. The foramen mentale is situated a little posterior to the front edge of the first molar M_1. *Photo: Ingrid Margry.*

Figure 7. Processus condylicus from the right mandible. The rising part is much longer than the part that protrudes laterally. *Photo: Ingrid Margry.*

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