

Monitoring and research on brown bears in Northern Europe

with the help of genetics

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Brown bear distribution in Europe



European Russia: ~40000

(Kolesnikov 2009)

Finland: ~2000

(Kojola, pers. comm)

Norway: 151

(Tobiassen et al. 2012)

Sweden: 3300

(Kindberg et al. 2011)



What methods do we have to study bears?

- Observations
- Dead bears
- Marked and collared individuals
- Non-invasive sampling



Noninvasive genetic sampling techniques

- Biological samples
- No contact with the animal
- Genetics for identification
- Capture-mark-recapture



Photo: Alexander Kopatz

Monitoring results, Norway

- 2006-2007: 126 ind., 29 females (23 %)
- 2008: 120 ind., 40 females (33%)
- 2009: 164 ind., 49 females (30%)
- 2010: 166 ind., 53 females (32%)
- **2011: 151 ind., 51 females (34%)**

Tobiassen et al. (2012)

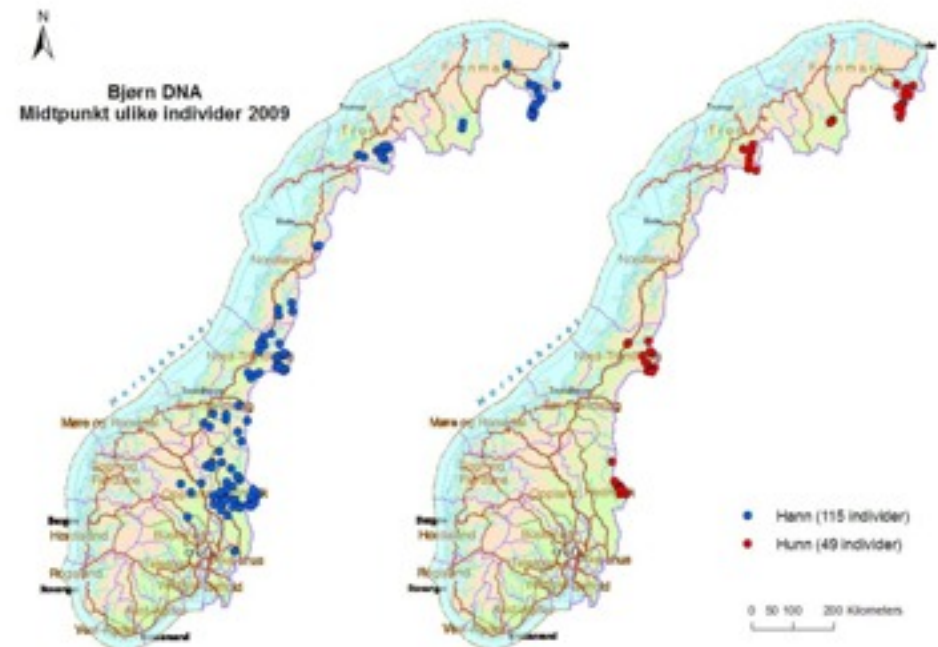
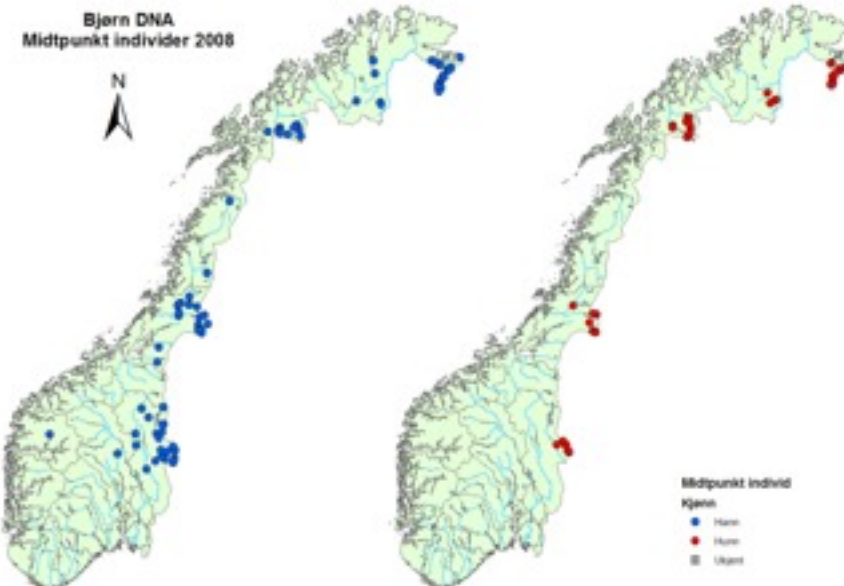
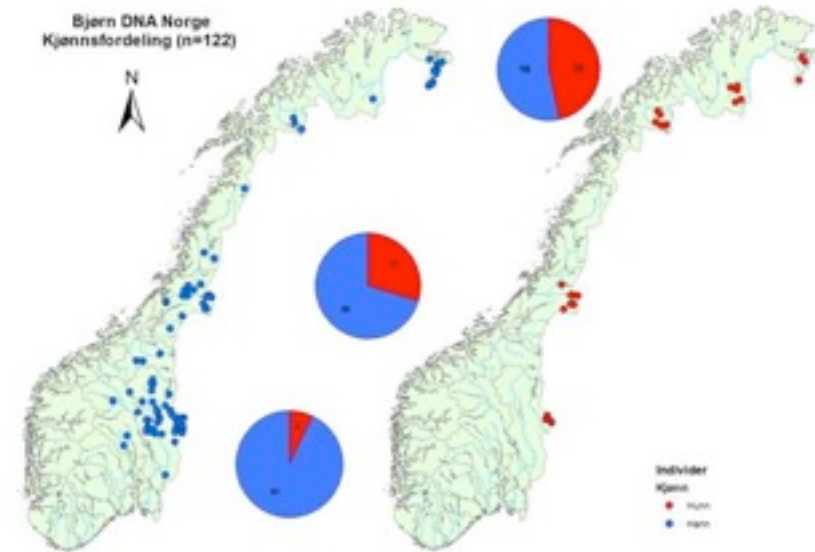




Photo: Sari Magga







Photos: Bioforsk Svanhovd

Week 1

Week 2



Week 3

Week 4



Kopatz et al. *submitted*

Database for monitoring, research and forensics

Internt_Prøvenr	Eksternt_Prøvenr	ID	Land	InnsamlingsÅR	FunnDato	Materiale	Individ	Individ_Norge
BH319	F16-4-A	1048	Finland	2007	20.08.2007	Hair		
BH320	F16-4-B	1049	Finland	2007	20.08.2007	Hair		
BH321	G10-4-A	1050	Finland	2007	21.08.2007	Hair		F164
BH322	F10-4-A	1051	Finland	2007	21.08.2007	Hair		
BH323	F10-4-B	1052	Finland	2007	21.08.2007	Hair		

Individer	Kjønn	G1D	G10B	MU05	MU09	MU15	MU26
FI1	M	125 / 125			122	109 / 113	82 / 82
FI10	F	123 / 127			118	111 / 115	82 / 82
FI11	M	127 / 133			118	111 / 115	82 / 82
FI12	M	127 / 127			118	111 / 111	82 / 82
FI13	M	121 / 121					82 / 82
FI14	F	123 / 127			122	109 / 115	82 / 90
FI15	M	121 / 131			124	115 / 117	82 / 86
FI16	-	123 / 123			114	109 / 109	82 / 90
FI17	M	121 / 123			124	113 / 117	82 / 86
FI18	M	121 / 133			100 / 117	80 / 80	
FI19	F	125 / 135			114		
FI2	M	127 / 131			16		
FI20	M	125 / 125			122		
FI21	M	123 / 125			110		
FI22	F	127 / 131			124		
FI23	M	123 / 135			114		
FI24	M	123 / 135	97 / 97	120 / 120	110 / 110		

Sorter fra A til Å
 Sørter fra Å til A
 Ejern filter fra G1D
 Tekstfilter

(Merk alt)
 (Tomme)
 121 / 121
 121 / 123
 121 / 125
 121 / 131
 121 / 133
 121 / 135
 123 / 123
 123 / 125

OK Avbryt



Eiken et al. (2009)

Available online at: www.sciencedirect.com

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ELSEVIER Forensic Science International: Genetics Supplement Series 2 (2009) 273–274 www.elsevier.com/locate/FSIGS5

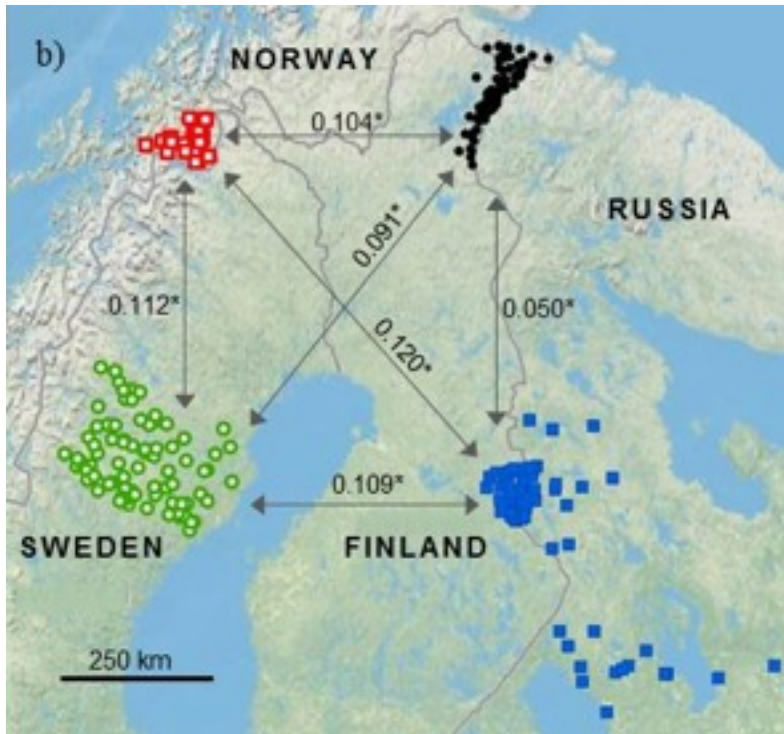
Research article

Population data for 12 STR loci in Northern European brown bear (*Ursus arctos*) and application of DNA profiles for forensic casework

H.G. Eiken^{a,*}, R.J. Andreassen^b, A. Kopatz^c, S.G. Bjervamoen^a, I. Wartiaainen^a, C. Tobiassen^a, P.M. Knappskog^a, P.E. Aspholm^a, M.E. Smith^a, J. Aspi^c

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Received 17 July 2009; accepted 29 July 2009



Schregel et al. (2012)



Kopatz et al. (2012)

MOLECULAR ECOLOGY
 Molecular Ecology (2012) doi: 10.1111/j.1365-294X.2012.09631.x

Limited gene flow among brown bear populations in far Northern Europe? Genetic analysis of the east–west border population in the Pasvik Valley

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Conserv Genet (2012) 13:683–692
 DOI 10.1007/s10592-012-0317-2

RESEARCH ARTICLE

Connectivity and population subdivision at the fringe of a large brown bear (*Ursus arctos*) population in North Western Europe

Alexander Kopatz · Hans Geir Eiken · Snorre B. Hagen · Minna Ruokonen · Rodrigo Esparza-Salas · Julia Schregel · Ilpo Kojola · Martin E. Smith · Ingvið Wartiainen · Paul E. Aspholm · Steinar Wikan · Alexander M. Rykov · Olga Makarova · Natalia Polikarpova · Konstantin F. Tirronen · Pjotr I. Danilov · Jouni Aspi



The DNA-laboratory at Bioforsk Svanhovd

by Bioforsk 1 month 1 week ago

Bioforsk Svanhovd, located in Pasvik, has developed a unique competence in the DNA-analysis of the brown bear. Through DNA-analysis one may identify the individual brown bear as well as its gender and family tree.

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Brunbjørn i hårfelle / Brown bear at a hair trap

by Bioforsk 1 month 12 hours ago

En brunbjørn besøker en hårfelle i Pasvikdalen, Norge.
For mer informasjon, se også: vimeo.com/33717115
eller besøk: bioforsk.no/svanhovd

Video taken by a wildlife camera of a brown bear visiting a hair-trap at the Pasvik Valley, Norway.
For more information check out our other video: vimeo.com/33718409
or visit: bioforsk.no/svanhovd

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www.vimeo.com/bioforsk