



HOKKAIDO UNIVERSITY

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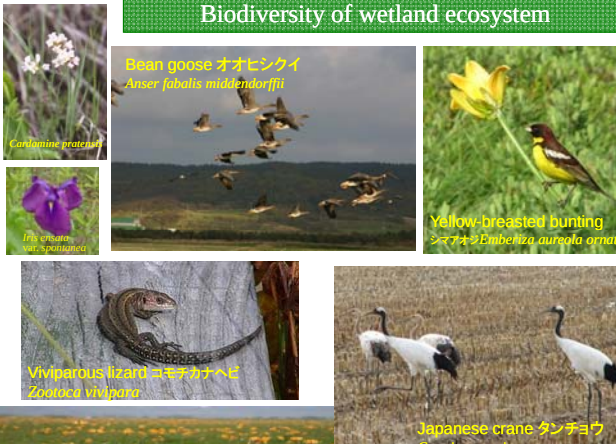
International Workshop on Wetland Management
Hokkaido Univ. Sustainability Week 2012 (Oct 10)

Biodiversity and conservation of mire ecosystems in Hokkaido, Japan



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Biodiversity of wetland ecosystem

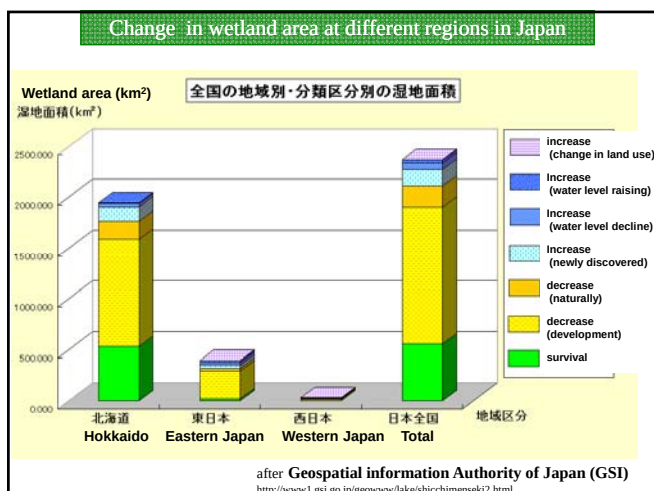


Bean goose オオヒシクイ
Anser fabalis middendorffii

Yellow-breasted bunting
シメオキ *Emberiza aureola ornata*

Viviparous lizard ヌメナカサヘビ
Zootoca vivipara

Japanese crane タンチョウ
Grus japonensis



Today's Topics

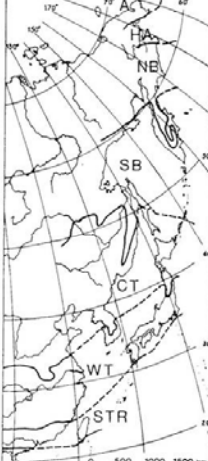
- I. Introduction of mires in Hokkaido
- II. Decline and the present condition of mires in Hokkaido
- III. Biodiversity and conservation of remaining mire ecosystem in Hokkaido



I. Introduction of mires in Hokkaido



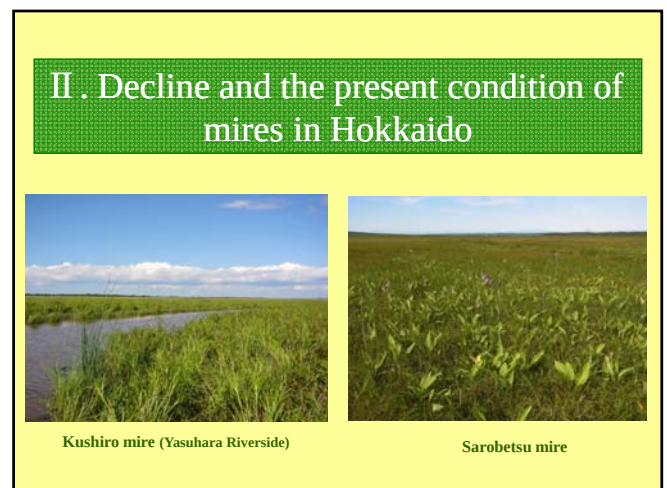
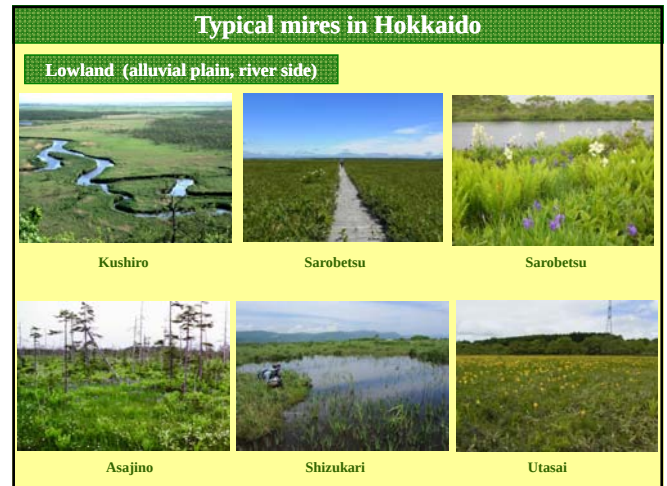
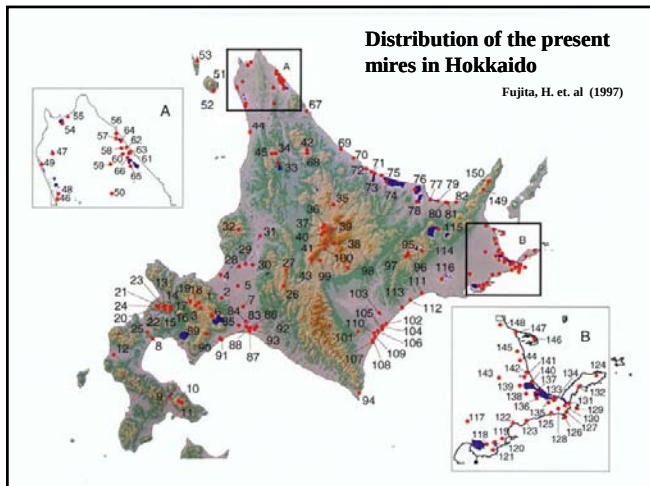
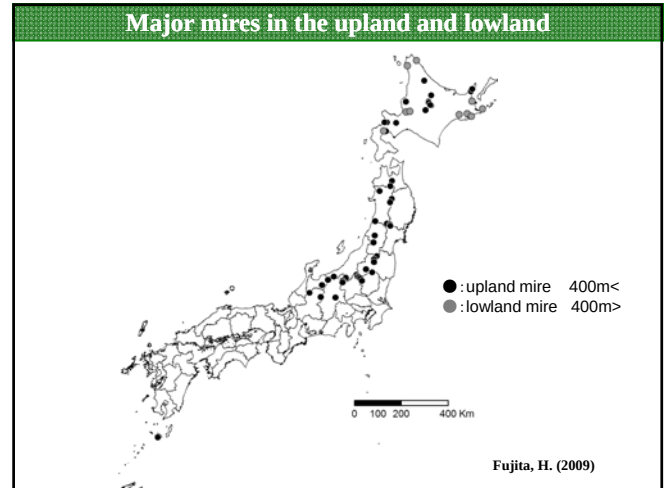
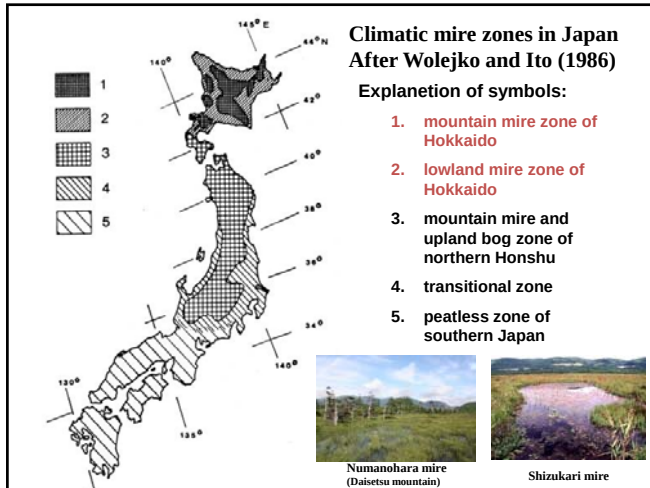
Makunbetsu mire

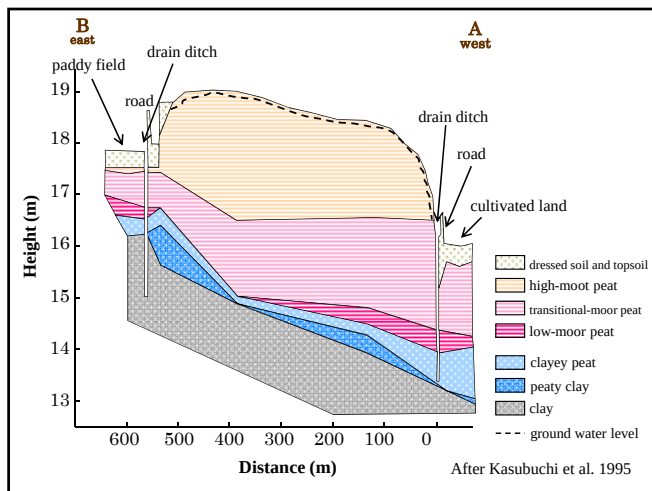
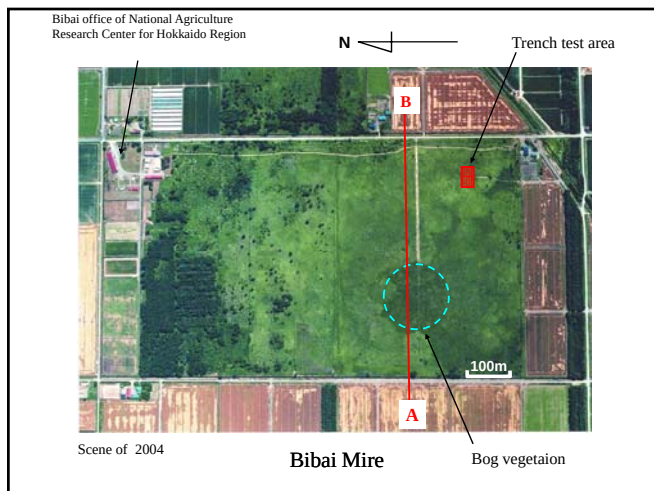
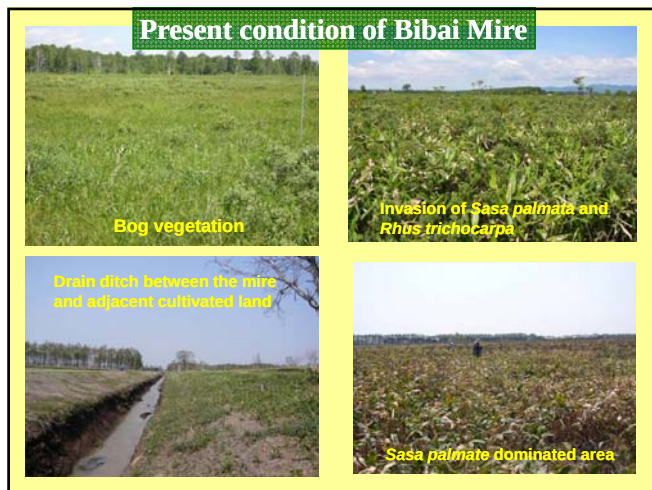
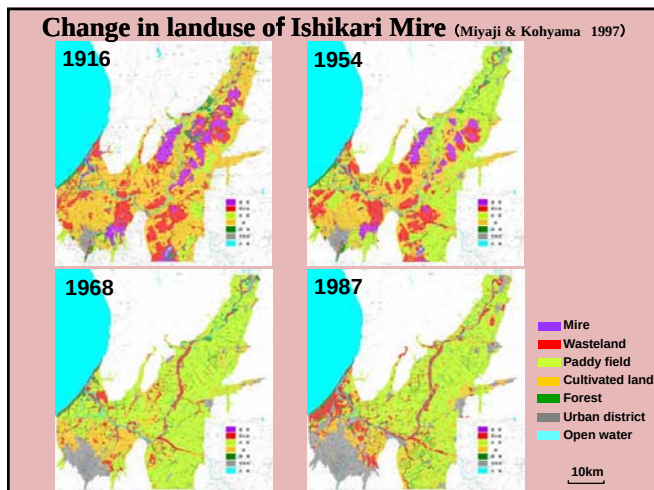
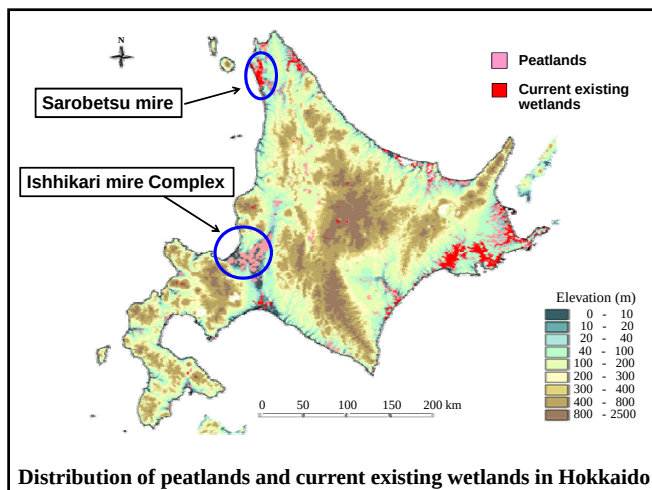
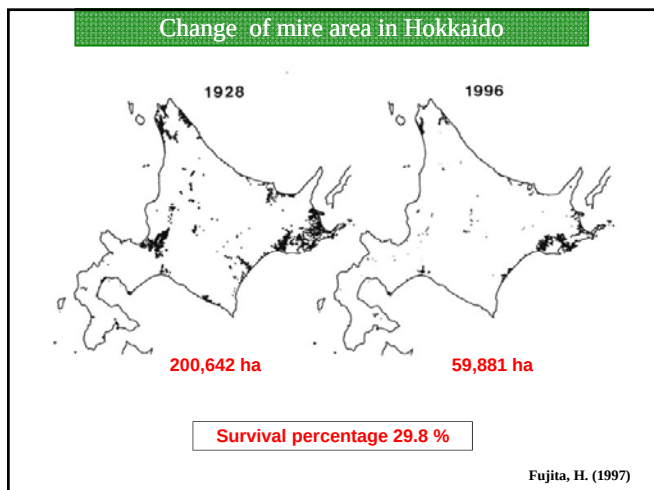


Climatic vegetational zones in East Asia,
After Hamet-Ahti et al. (1974)

Explanation of symbols:

- A - arctic
- HA - hemiarctic
- NB - northern boreal
- SB - southern boreal
- CT - cool temperate
- WT - warm temperate
- STR - subtropical
- TR - tropical

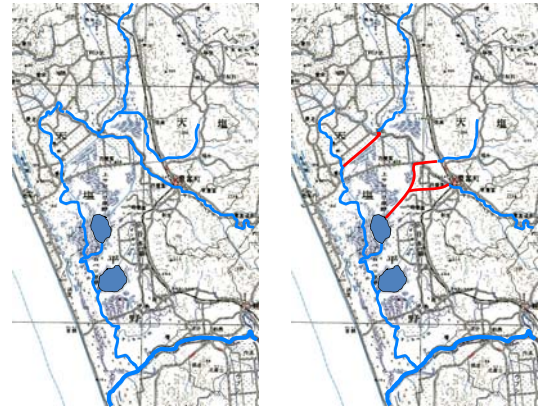




Present condition of Shinsinotsu mire



Change of the river network around Sarobestu mire



Original river network (before 1920s)

Present river network

1961 April



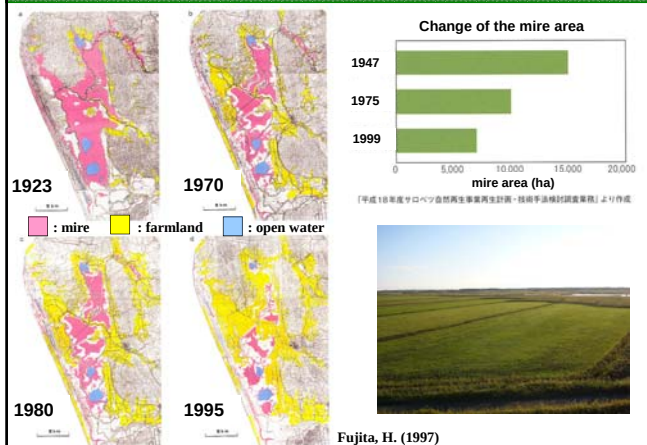
After Hokkaido Regional Development Bureau (1972)『泥炭地の生態』

2010 October



Photo by Takashi Inoue

Reduction of Sarobestu mire

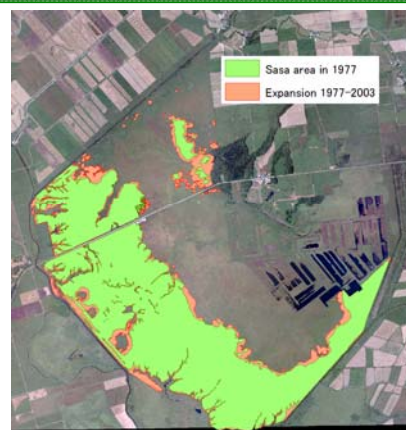


Fujita, H. (1997)

Expansion of Sasa growing area in Sarobestu mire



Expansion of Sasa growing area in Sarobestu mire



Reduction of Penke-pond in Sarobetsu mire

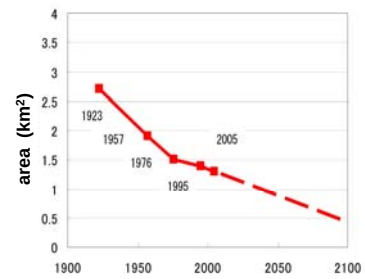


1947



1999

Reduction of Penke-pond in Sarobetsu mire



Change of the open water area of Penke-pond
A dashed line is simulated Panke-pond area in the future.

国土地理院 サロベツ地区湖沼湿原調査報告書(2007)より引用

After Geospatial information Authority of Japan (GSI) (2007)
'The report of lake and wetland survey of Sarobetsu area, Hokkaido, northern Japan'

III. Biodiversity and conservation of remaining mire ecosystem



Ownership of mires in Hokkaido

Fujita et.al (2009)

	Ownership condition	Number	% in site	ha	% in area
Uplands	Federal land	29	67.4	654.8	70.9
	Prefectural, town, and municipal land	10	23.3	255.2	27.7
	Private land	3	7.0	13.0	1.4
	Federal land & Prefectural, town, and municipal land mixed	1	2.3	-	-
	Subtotal	43	100.0	923.0	100.0
Lowlands	Federal land	15	14.0	12,802.9	21.7
	Prefectural, town, and municipal land	3	2.8	3,766.1	6.4
	Private land	45	42.1	42,388.8	71.9
	Federal land & Prefectural, town, and municipal land mixed	2	1.9	-	-
	Federal, Prefectural, town, and land & Private land mixed	42	39.2	-	-
	Subtotal	107	100.0	58,957.8	100.0
Total		150		59,880.8	

The extent of designated mires protection in Hokkaido.

Fujita et. al (2009)

	Conservation system	Number	% in site	ha	% in area
Uplands N=43	National park	20	46.5	635.0	68.8
	Quasi-national park	9	20.9	193.2	20.9
	Prefectural national park	2	4.7	4.4	0.5
	Other protected areas	3	7.0	57.9	6.3
	No protection	9	20.9	32.5	3.5
	Subtotal	43	100.0	923	100.0
Lowlands N=107	National park	6	5.6	18080.7	30.7
	Quasi-national park	8	7.5	2406.9	4.1
	Prefectural national park	26	24.3	7899.0	13.4
	Other protected areas	25	23.4	2231.5	3.8
	No protection	42	39.3	28339.7	48.1
	Subtotal	107	100.0	58957.8	100.0
Total		150		59880.8	

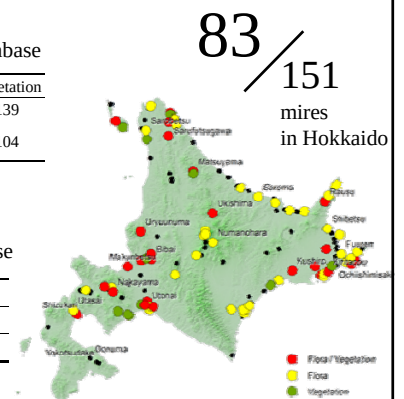
Database for wetland biodiversity analysis

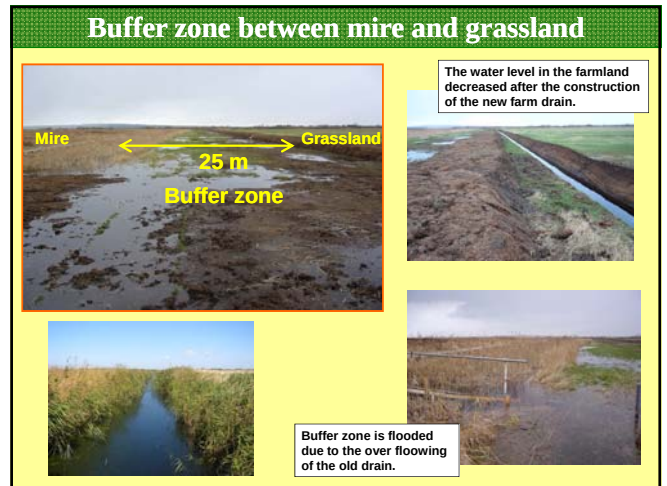
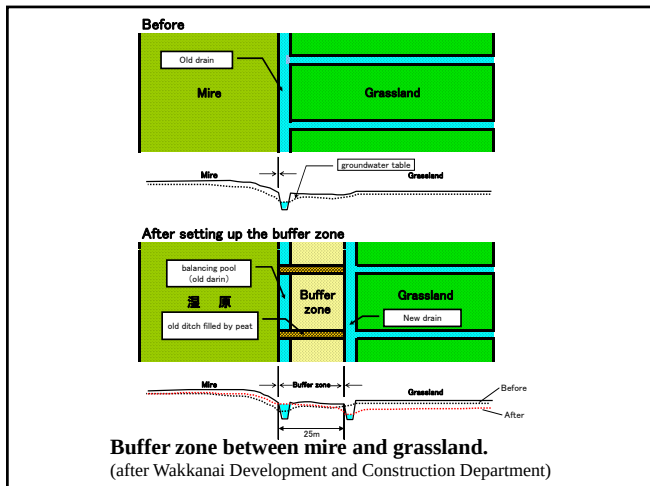
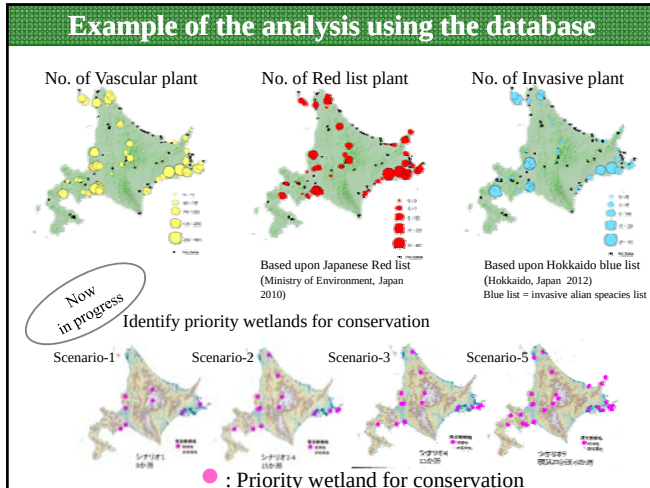
Literature used for the database

	Flora	Vegetation
No. of literature	91	139
Used for this analysis	57	104

The number of vascular plant species in the database

No. of vascular plant	1,442
No. of Red data plant	173
No. of Invasive plant	151





Conclusion

- In Hokkaido, more than 70 % of mire area has been lost during the past 100 years.
- It is urgent for human society to protect and restore the remaining mires.
- The mires in the rural area and the urban area have serious problems due to drainage, land subsidence, mire vegetation change etc.
- For further progress;
 - Accumulation of scientific knowledge and commitment of researches,
 - Long term monitoring project,
 - Organization of new method to evaluate biodiversity