# History and the future of Japanese black bear - human coexistence.

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## I shall talk two things.

H

think & change

# think



Choromatsu I, died on 14 Januray, 2007 (29-year-old)







An accident can be escaped with a GOOD rule.

# We missed the wolf extinct in early 20th century.

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図1 本州・四国・九州の中期更新世中期と中期更新世後期の代表 的な哺乳類

1:ハリネズミ属、2:シントウトガリネズミ、3:ニホンモグラジネズ ミ、4:モグラ属、5:モリレミング、6:ニホンムカシヤチネズミ、7: ニホンムカシハタネズミ、8:アカネズミ、9:ヤマネ、10:ニホンザル、 11:ノウサギ、12:オオカミ、13:タヌキ、14:キツネ、15:クズウア ナグマ(アナグマ属の絶滅亜種)、16:トウヨウゾウ、17:ナウマンゾ ウ、18:シナサイ、19:ヤベオオツノジカ、20:ニホンムカシジカ。こ れらのうち、11のノウサギを含む兎類は通常小型哺乳類に含められるが、 ここではその体の大きさから便宜的に、中・大型哺乳類の欄に入れてい る(図2、図3でも同様)。

1.5~1 my ago



図2 本州・四国・九州の後期更新世の代表的な哺乳類 1:シントウトガリネズミ、2:ニホンモグラジネズミ、3:モグラ属、 4:ニホンムカシハタネズミ、5:アカネズミ、6:ヤマネ、7:ニホンザ ル、8:ノウサギ、9:オオカミ、10:タヌキ、11:キツネ、12:ツキノ ワグマ、13:ヒグマ、14:クズウアナグマ(アナグマ属の絶滅亜種)、 15:ヒョウ、16:トラ、17:ナウマンゾウ、18:ヤベオオツノジカ、 19:ニホンムカシジカ、20:ヘラジカ、21:ステップパイソン、22:オ ーロックス。

### human impacts & climate change

0.4 my ~ 10 thousand years ago

... and much more before.













The testa is removed before being swallowed.

They have so clever "hands" and a mouth.

Distribution of American black bear and human on the north American Continent is negatively correlated. (Rudis & Tansey, 1995)

Bear and human populations in the history maybe the same ?



# We are the competitors.





following Kito (2000), & the Ministry of General Affairs (2002)

### The outline is ...



Referring human population trends...

Japanese black bear population might change like this in the recent 10 thousand years

### shifting to a different phase?





### Carrying capacity of Japanese Black Bear



a forest near a village view of Chichibu mountains





### Aerial picture on 16 August, 1994



5th National vegetation survey (1993 - 1998)



Japan rushed to plant coniferous trees (mainly Sugi & Hinoki in southern Japan) at bare or natural forest area in 1960 - 1980s. Then forest cut decreased very much, as we import more wood. Use of woods for charcoal, fuel, fertilization for agriculture, and many life utilities has also decreased dramatically as we depended on industrial products produced of oil and mines.

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Total forest area older than 10-year, in 26 districts where any black bear was controlled in 2006. statistics, Forestry Agency (31 March, 2002)

decíduous natural	60,200 km
decíduous planted	1,021 km²
coníferous planted	52,879 km²
coníferous natural	12,500 km





radio tracking surveys



Female's home ranges in 1994 - 1996, Chichibu mountains.



male's home ranges are larger (chichibu)

natural deciduous forest dominating area



1 week tracking of a male (S27) movement with a GPS receiver (K. Suzuki et al., unpublished)

### daily activity

Act2-7/17 Act2-7/18

-\*- Act2-7/21

--- Act2-7/22



250



*Ckutama* bear research group website

artificial coniferous forest dominating area



female density (assumption)

decíduous	62,221 km <sup>2</sup>	110 km
conífer planted	52,879 km	<b>K</b> /30 km <sup>2</sup>
conífer natural	12,500 km	no resídence



Japanese social systems are changing, most of the people live in the cities, very few have a relationships to the wildlife or understand the nature and wildlife ecology.

Social infrastructures, including public traffics, schools, hospitals have been rapidly decreasing in the mountainous area in Japan.



翌間区分は田口 (1992) にもとづく Dissection is based on Taguchi(1992)

山村における人とクマの空間的な関係の変化 (Ishida 1996) change of spacial interaction between man and bear in moutainous area of Japan



人里における人とクマの空間的な関係の変化 (Ishida 2007) change of spacial interaction between man and bear in suburban area of Japan

## We have two missions.

# no human sacrifice & bear population conservation

# no human sacrifice & agricultural damage control bear population conservation





strategic environment assessment & ecosystem management