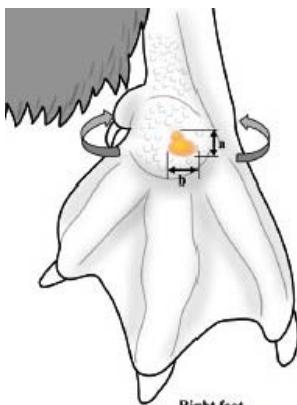


# Case report of oral melanoma in a king penguin (*Aptenodytes patagonicus*) found by cooperation between zoo and museum

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Takeshi Wada<sup>1</sup>, Kazutoshi Takami<sup>2</sup>

<sup>1</sup>: Naniwa-Hone-Hone-Dan, Osaka Museum of Natural History  
<sup>2</sup>: Osaka Municipal Tennoji Zoological Gardens

Species: King penguin (*Aptenodytes patagonicus*)  
Sex and age: Adult male  
Length: 93 cm  
Body weight: 8.85Kg



### Case history

1992 Nov. 28 Transferred to Tennoji Zoo (No previous records)

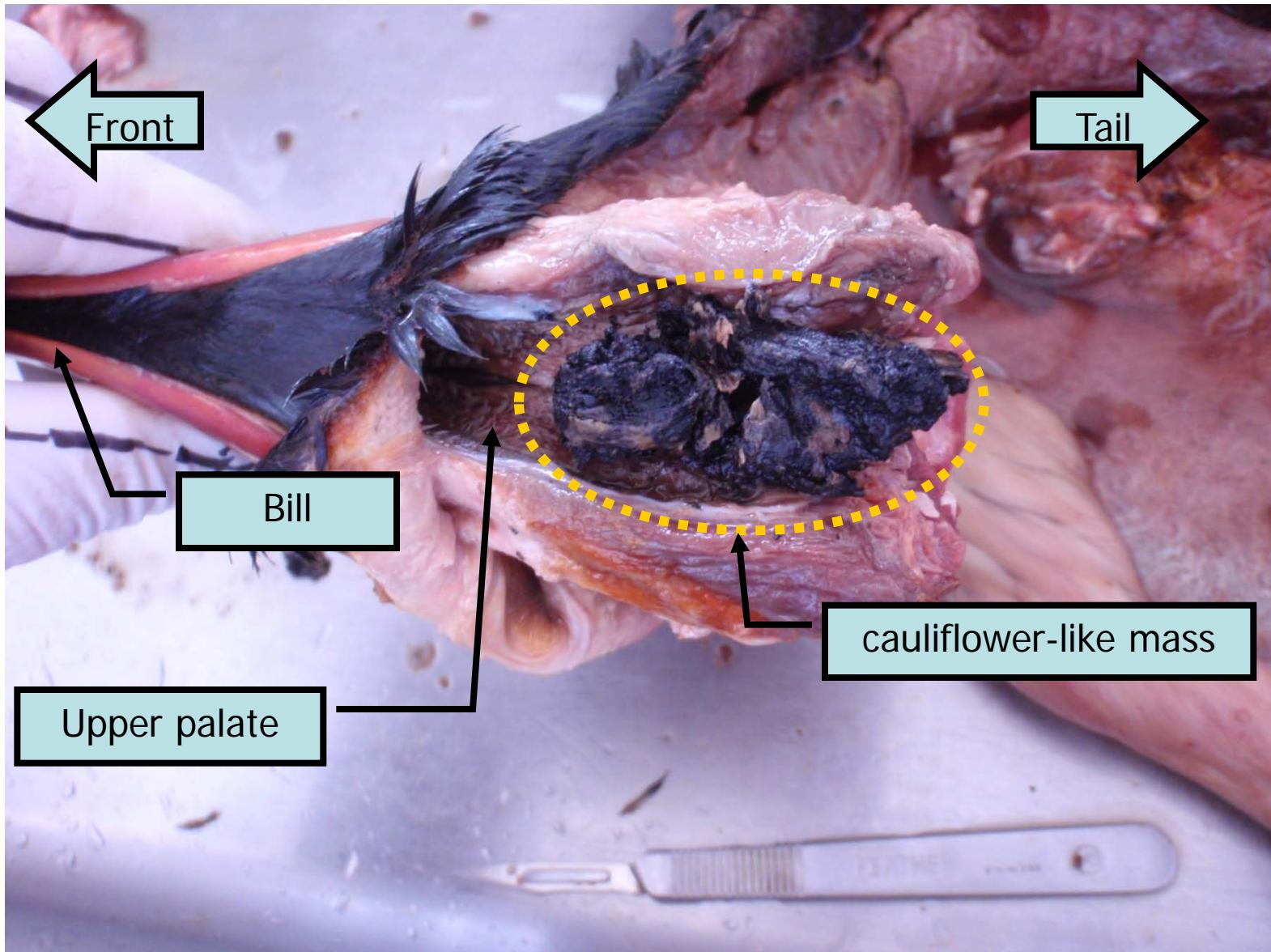
1996 Dec. Oral administration of antibiotics (trimethoprim) and application of anti-inflammatory drug (bromelain) was started as the continuous medical treatments for bumblefoot in the right plantar.

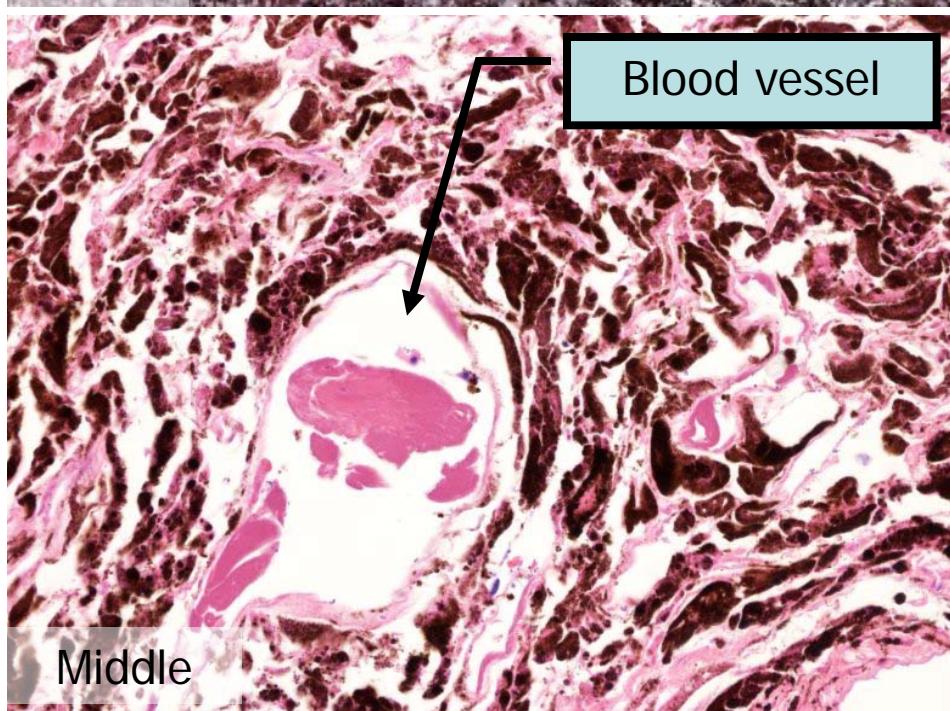
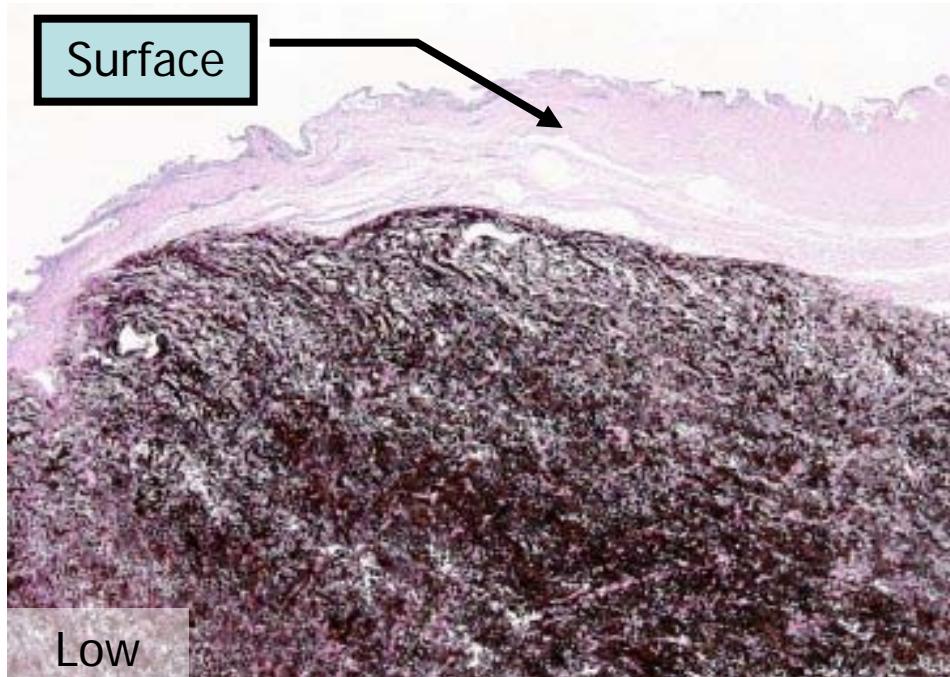
1998 Oct. Emaciation, inappetence, and dyspnea were observed. Antifungal drug was administered.

1999 Jun. Death. Brief necropsy was performed.

2006 Oct. Carcass was donated to Osaka Museum of Natural History (OMNH) to prepare flat skin specimen

2013 May During skinning, a black colored cauliflower-like mass was observed at the upper palate.

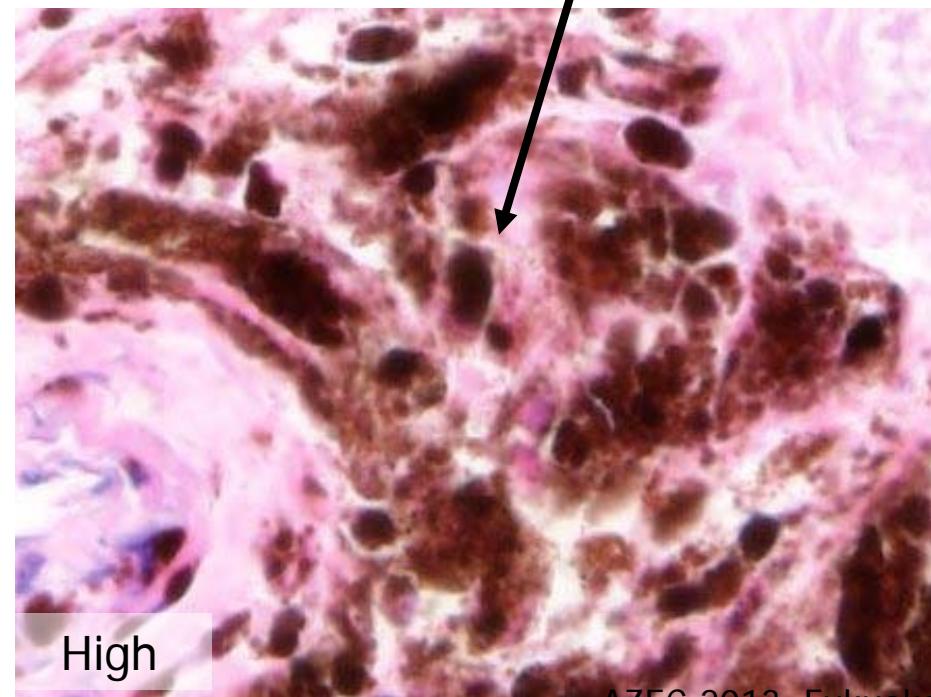




## Histopathology:

This mass was consisted of round to spindle tumor cells containing with various amount of melanin pigment.

⇒ **Melanoma**



Human: Melanoma is a malignant neoplasm of melanocytes. Melanocytes produce the brown pigment called as melanin. Melanoma predominantly occur in the skin, but are also found in any part of the body that contains melanocytes. If skin melanoma is found early, and if it is completely removed surgically, then the chance of cure is high.



Wikipedia

Veterinary field: Melanomas are relatively common in dog, horse, and certain breeds of swine, but less frequent in cattle and goats, and quite rare in cats and sheep. Melanomas are extremely rare in avian species. There are previous reports in fowls (1919, 1928, 1929 and 1932) emerald duck (1978), budgerigar (1991), macaroni penguin, red-tailed hawk (1996), and Humboldt penguin (1998 and 2003). This is the first case report of melanoma in king penguin as we searched.



<http://www.biolib.cz/en/taxonimage/id177357/?taxonid=651226>



<http://www.penguinworld.com/types/macaroni.html>



Wikipedia



## Inside story:

In the necropsy record in Tennoji Zoo, there is no description of specific changes including this tumor. Therefore, metastasis is unclear. Since the tumor located in the deep throat, it could not be find during the clinical phase and also the brief necropsy especially focused on the body cavity.



Melanoma was found out during the skinning at the museum.



Naniwa Hone-Hone Dan:  
A voluntary circle to prepare mammalian and bird specimens based in OMNH.

Naniwa=Ancient Name of Osaka Hone=Bone Dan=Group



Osaka Municipal Tennoji Zoological Gardens



Osaka Museum of Natural History

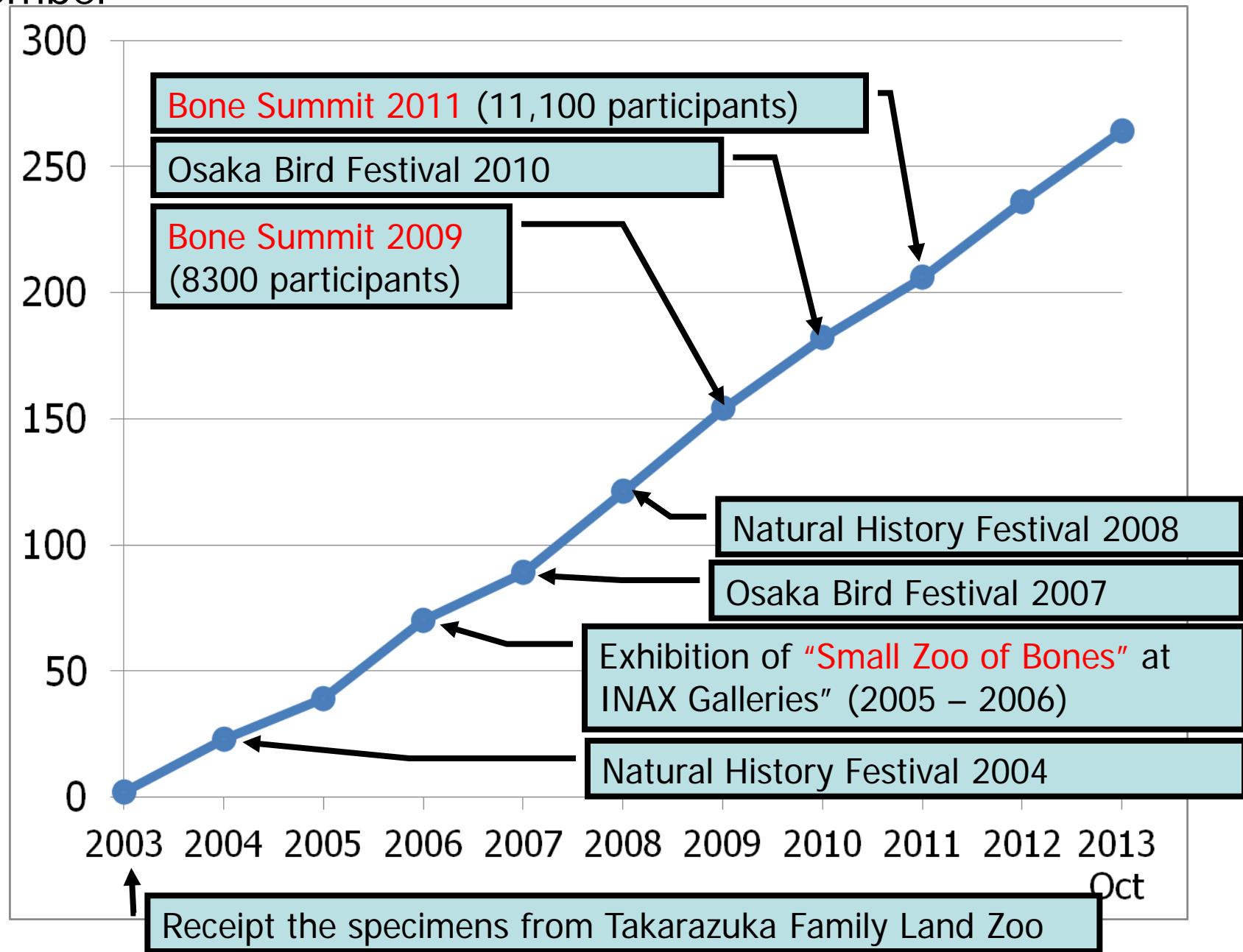
# Naniwa Hone-Hone Dan

## Activity:

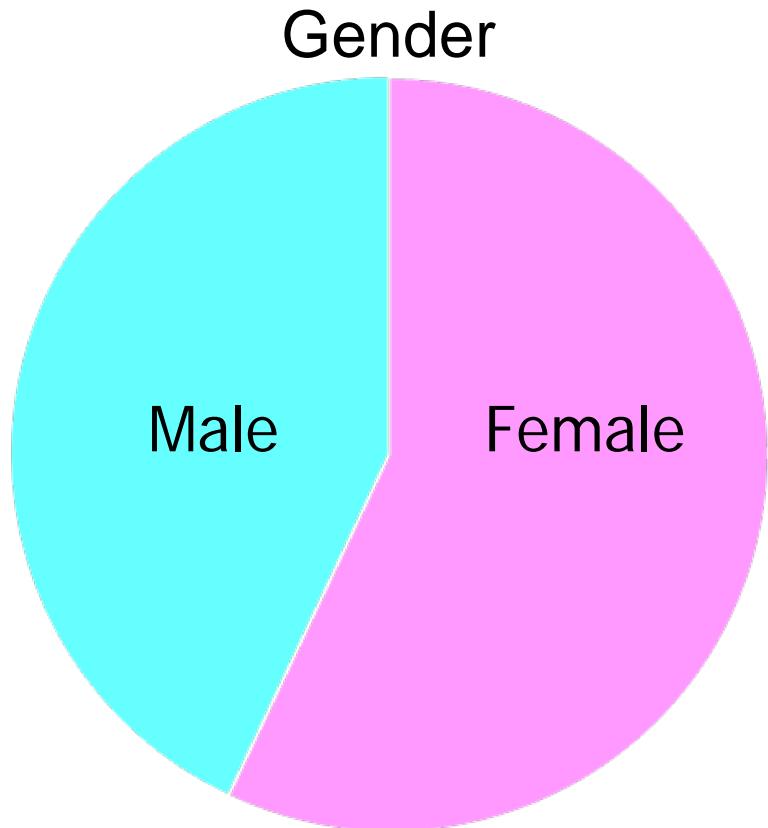
- ☠ Once or twice for a month (holidays)
- ☠ In the practical room
- ☠ No time-rule but no salary
- ☠ Registered through qualification examination



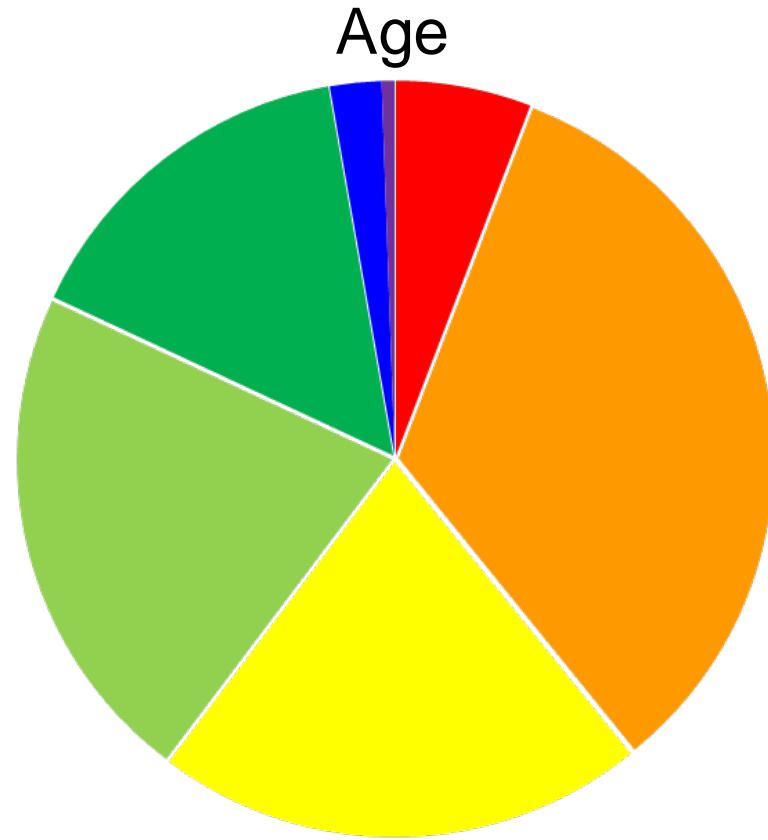
# Member



# Member



Office worker, students,  
teachers, artists, and so on



- less than 10
- 10
- 20
- 30
- 40
- 50
- over 60

# Where do carcasses come from?

Road Kill



Hunted



Eliminated



Bird strike



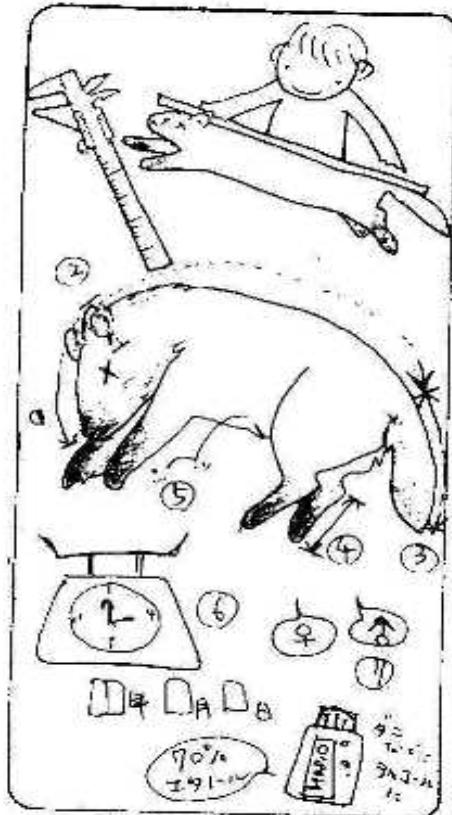
Zoo



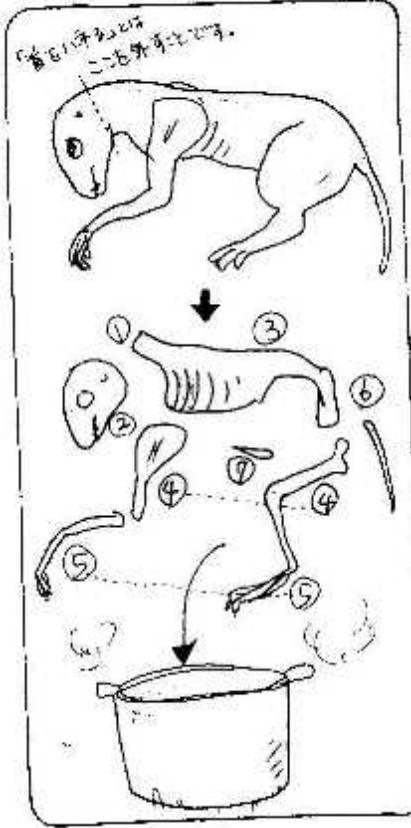
Stranding



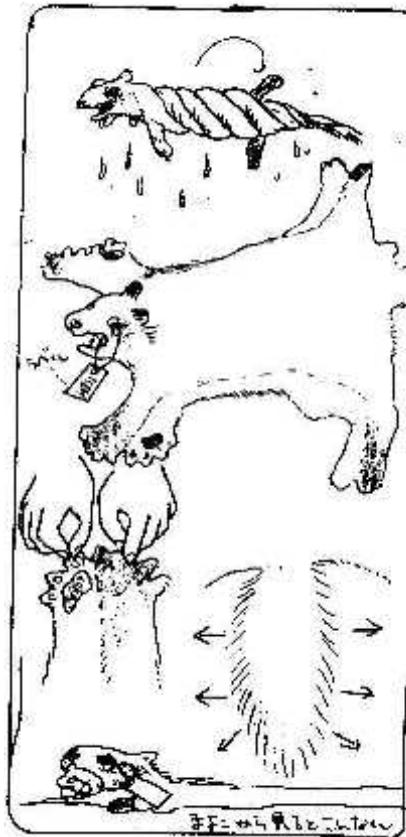
# SOP (Standard Operating Procedures) - Mammalian -



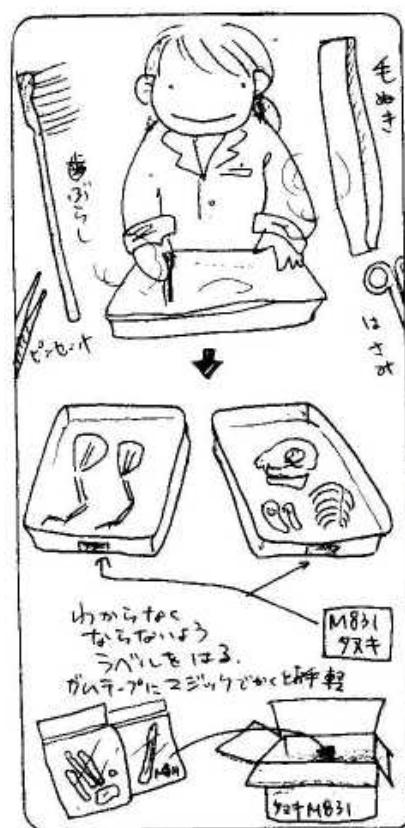
**Measurement**  
**Skinning**  
**Necropsy**



**Boiling**



**Tanning**



**Cleaning**  
**Package**

Illustration:  
Makiko Nishizawa



# SOP (Standard Operating Procedures) - Avian -

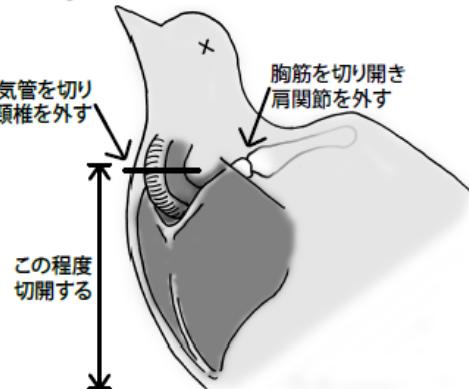
丸めたトイレットペーパーを口に押し込む



竜骨突起の上を切開し左右に開く



気管を切り  
頭椎を外す  
胸筋を切り開き  
肩関節を外す



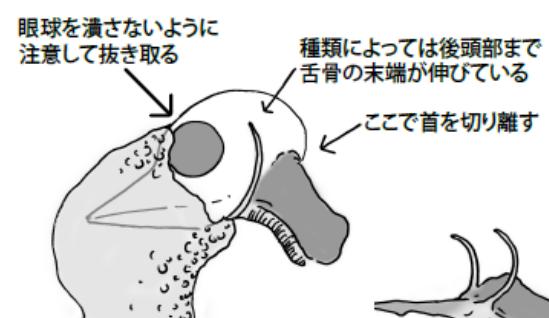
ここを持ってぶら下げるようする



尾椎を根元から  
ハサミ等で切る



眼球を潰さないように  
注意して抜き取る



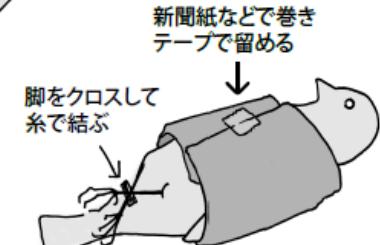
舌、気管、首を  
まとめて切り離す



芯に綿を巻く



新聞紙などで巻き  
テープで留める



なにわホネホネ団

Illustration:  
Atsushi Satake



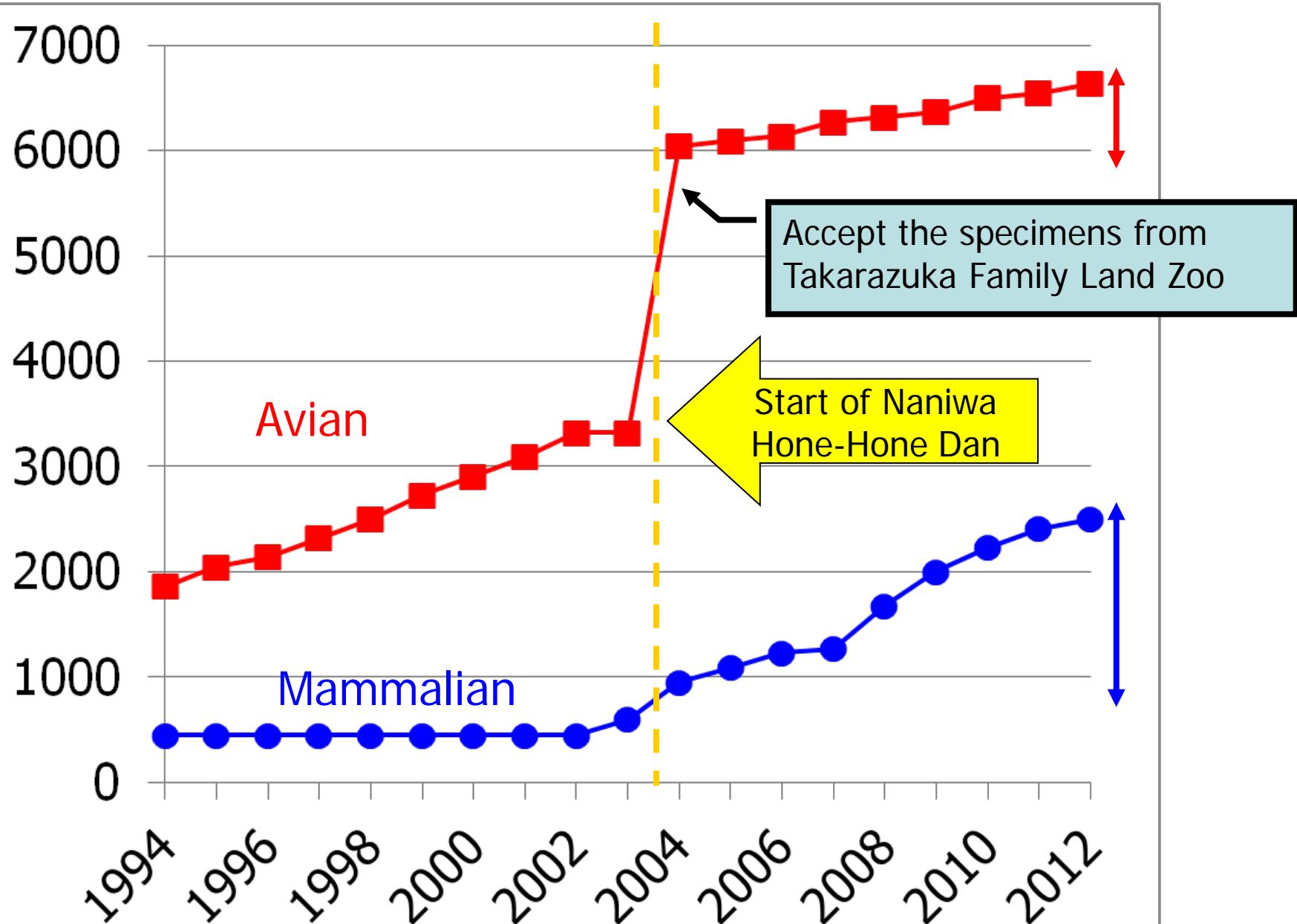


**Skin**  
**Bone**



收藏庫

# Number of specimens in OMNH



## Favorable voice from members:

- To touch rare and beautiful animals
- To know structure and function of animal body
- To satisfy intellectual curiosity
- Joy of discovery
- To become much interested in biology
- To increase knowledge
- Satisfaction by accomplishment
- To make friends who share sense of values regardless of age and gender
- Improvement of technique
- To became to love animals more
- Homework of summer vacation



## Unfavorable voice from members:

- Bad smell
- Cannot confide to common people.
- Needs patience
- Far to commute
- Zoonosis

-  To use protectors
-  Sterilization
-  Hygiene education

## Our perspective:

- To tackle with more various species
- To build up whole skeleton of large animal
- To notify the value of carcasses of wild animals
- To consider relationship of human and wildlife
- Collaboration with other groups and other fields (ex. artists)
- More efficient work by division of labor
- Upbringing of the professional as next generation



# Merit

Voluntary citizen interested  
in animal science



Zoo/Aquarium:  
Utilization of specimens

Museum:  
Labor shortage



Add  
on

50,000 yen/specimen X 200/year  
= ~~save~~ 10,000,000 yen/year



# For research



Kosei Inui, Yuka Tominaga, Yumi Honda,  
Makino Tachibana, Satomi Yonezawa,  
Makiko Nishizawa, Takeshi Wada, Hiroyuki  
Taruno

ASZWM 2009 in Korea

Case report of hypertrophic pulmonary  
osteoarthropathy observed in a Japanese  
raccoon dog (*Nyctereutes procyonoides*).

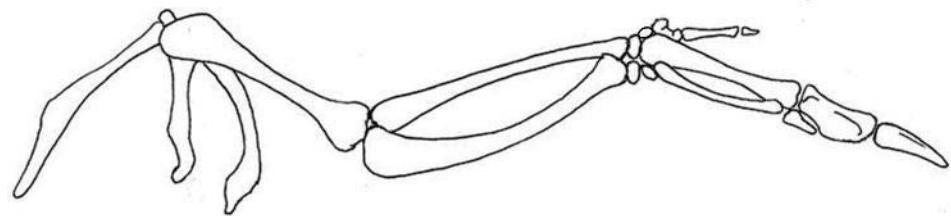


Avian subcutaneous mite

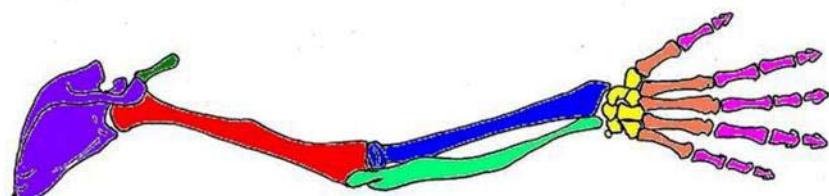
El-Dakhly K, Inui K, Uranno N, El-Nahass el-S,  
Kakogawa M, Hirata A, Kimura J, Sakai H,  
Yanai T. J Zoo Wildl Med 2012 Dec;  
43(4):953-5.

Occurrence of the subcutaneous mite,  
*Hypodectes propus* (Acarina: Hypoderatidae),  
in the grey heron, *Ardea cinerea* (Aves:  
Ciconiiformes) a new host record in Japan.

# For education



Let's paint like human bones



# Tohoku support: Delivery workshop (Osaka Natural History Center )



AZEC 2013, Fukuoka



Return to Osaka, we performed the workshop for children and parents in Osaka with same program:

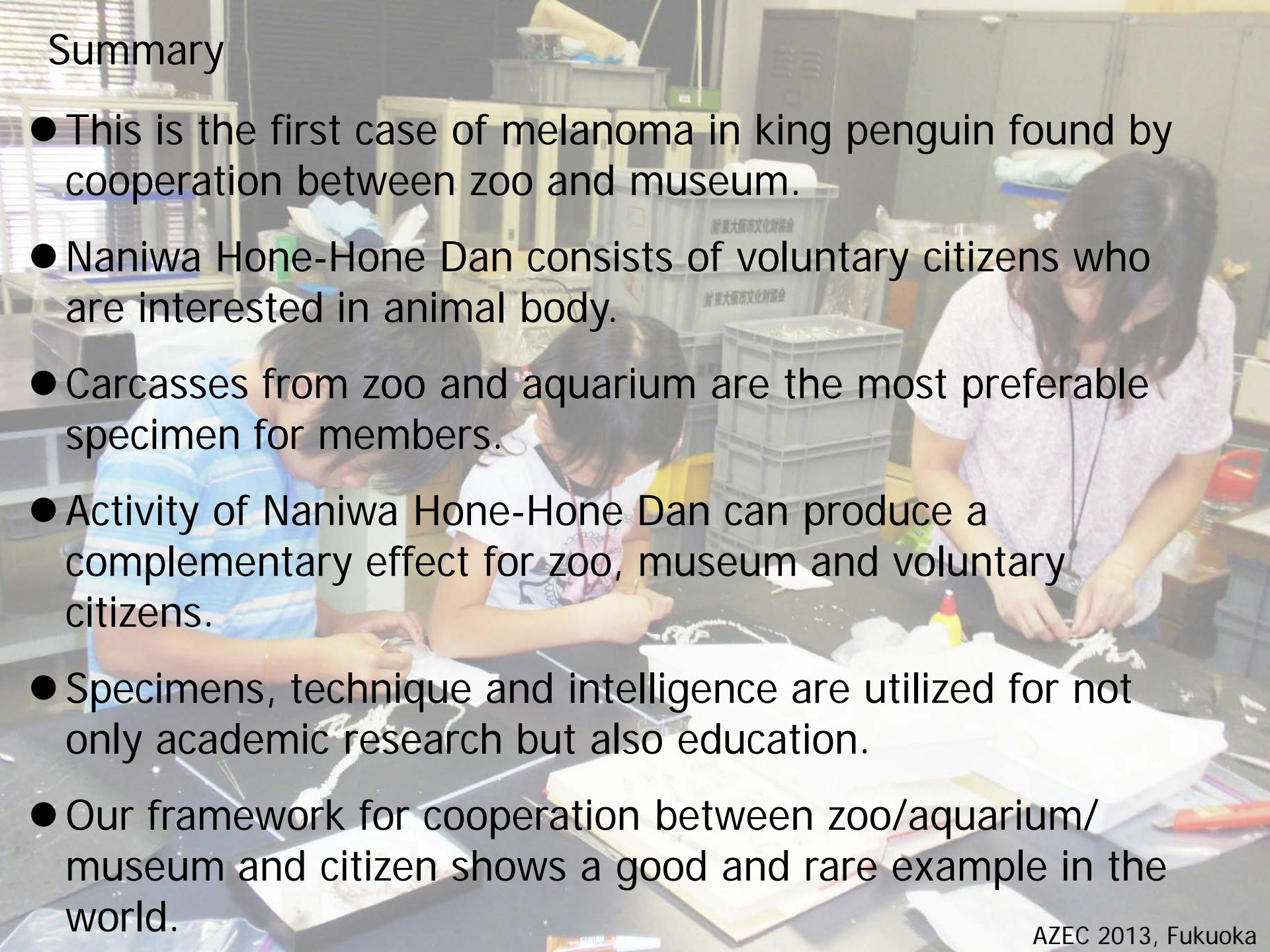
- ✓ Introduce of natural history of Sanriku area in Tohoku
- ✓ Explain the significance of delivery workshop
  - "We live apart each other but we are connected through this workshop."
- ✓ Reconfirm the significance delivery workshop
- ✓ Maintain motivation and improve the skill
  - "Let's make use of new discovery in the next expedition."

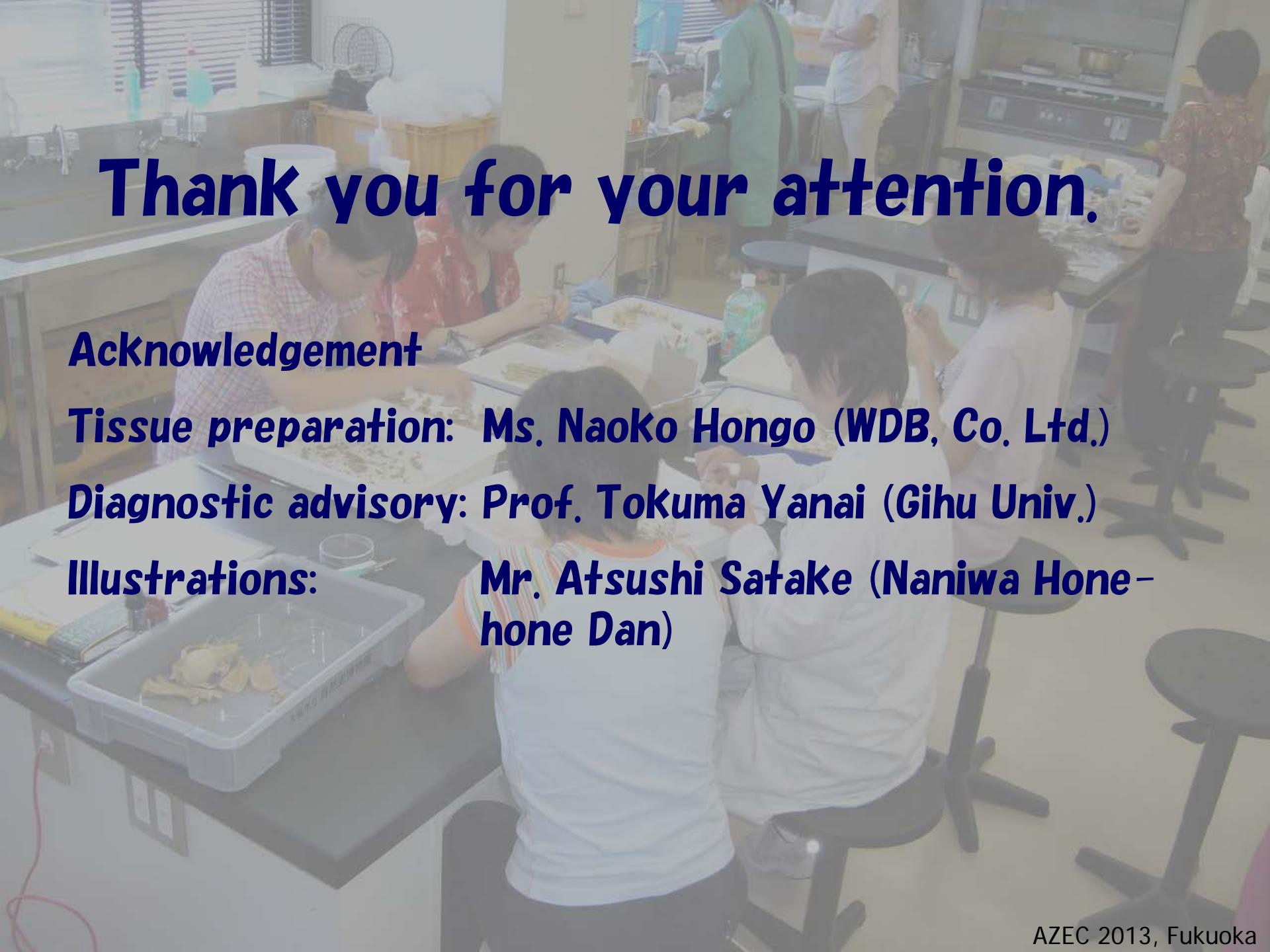
**We were nominated for the best 6 candidates of the Civil Society Organization Award!**



# Summary

- This is the first case of melanoma in king penguin found by cooperation between zoo and museum.
- Naniwa Hone-Hone Dan consists of voluntary citizens who are interested in animal body.
- Carcasses from zoo and aquarium are the most preferable specimen for members.
- Activity of Naniwa Hone-Hone Dan can produce a complementary effect for zoo, museum and voluntary citizens.
- Specimens, technique and intelligence are utilized for not only academic research but also education.
- Our framework for cooperation between zoo/aquarium/ museum and citizen shows a good and rare example in the world.





# **Thank you for your attention.**

## **Acknowledgement**

**Tissue preparation: Ms. Naoko Hongo (WDB, Co. Ltd.)**

**Diagnostic advisory: Prof. Tokuma Yanai (Gihu Univ.)**

**Illustrations:**

**Mr. Atsushi Satake (Naniwa Hone-hone Dan)**