

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

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²: Osaka Municipal Tennoji Zoological Gardens

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

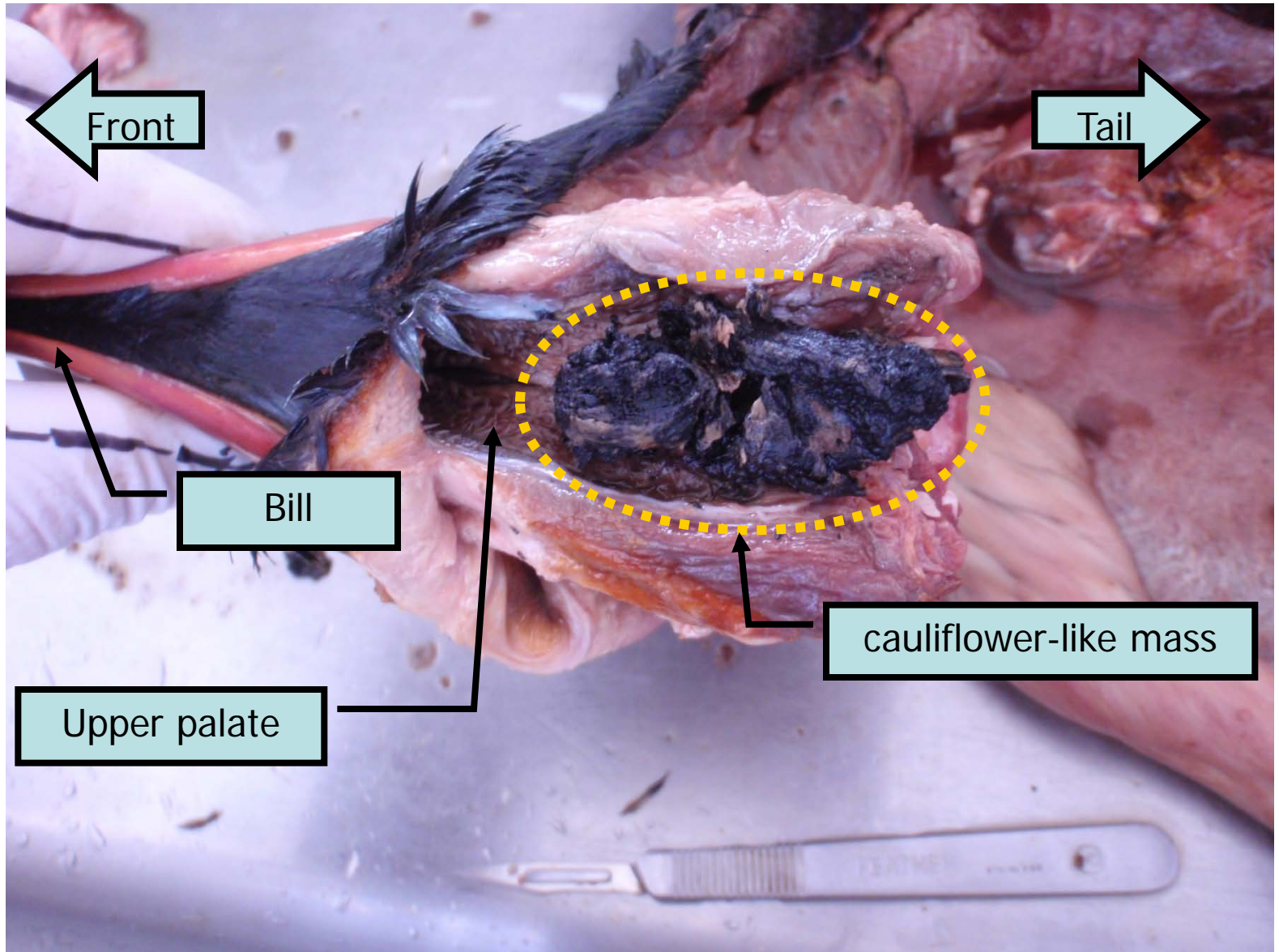


Right foot

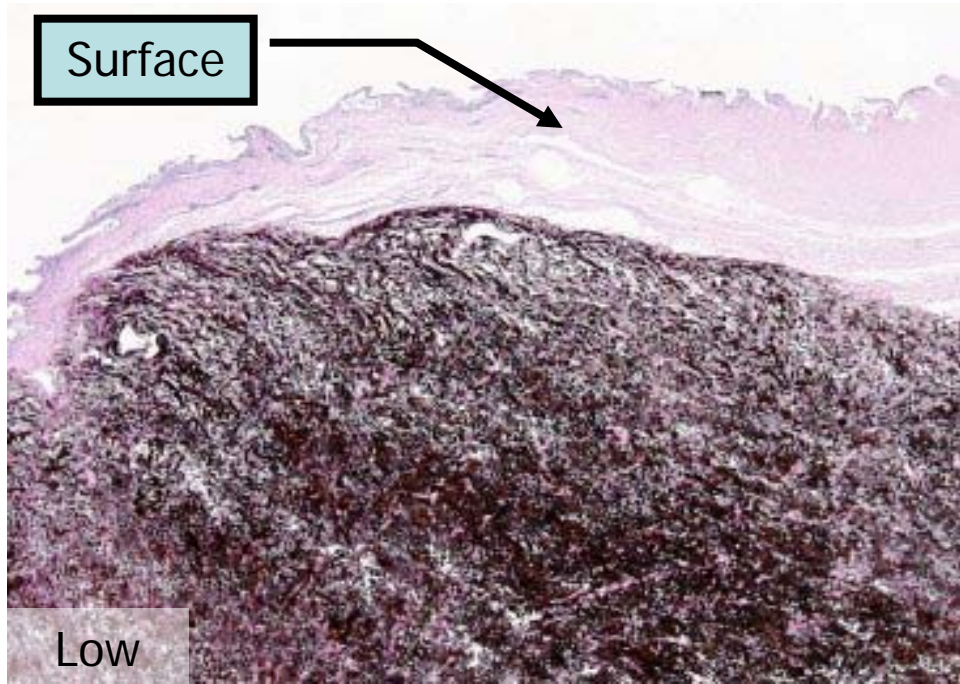
Reisfeld, L. et al. (2013)
 Pesq. Vet. Bras. vol.33

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.



Surface



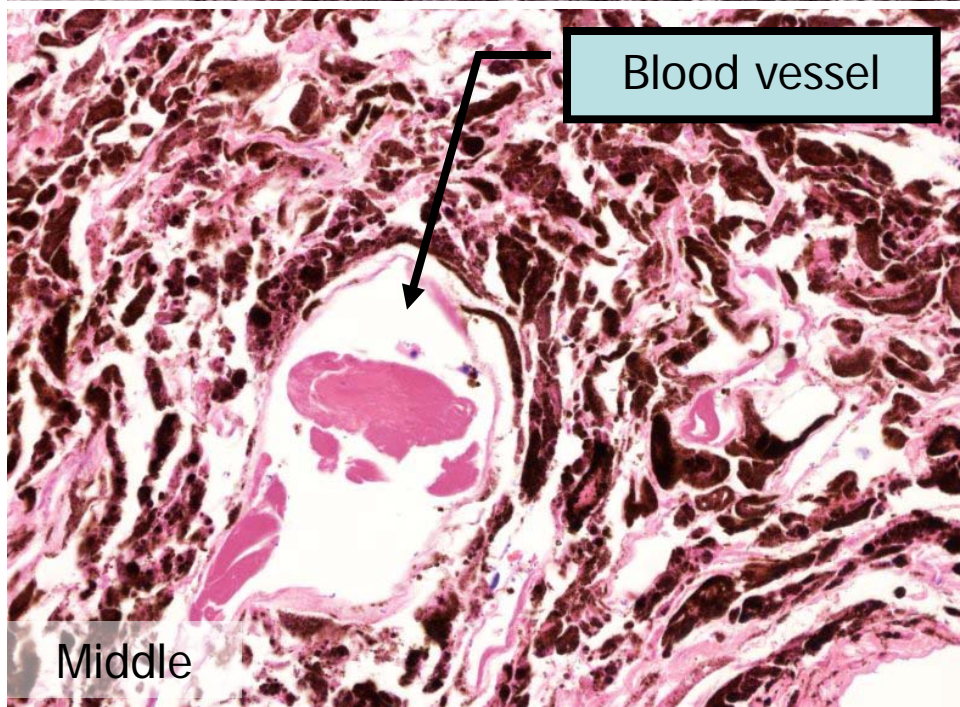
Low

Histopathology:

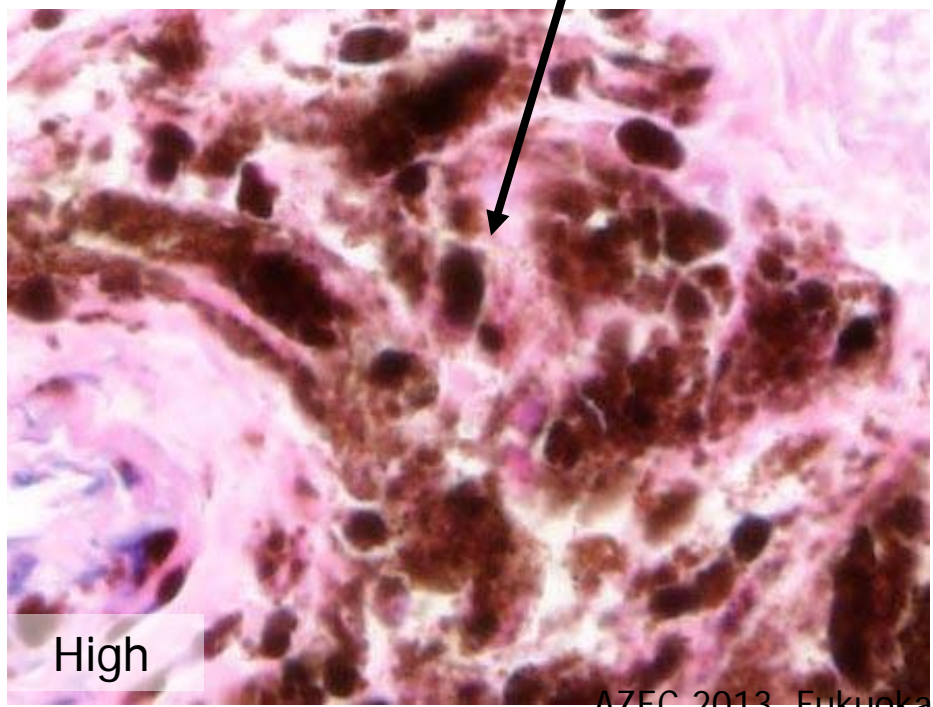
This mass was consisted of round to spindle tumor cells containing with various amount of melanin pigment.

⇒ Melanoma

Blood vessel



Middle



High

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.

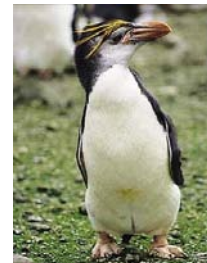


Wikipedia

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.



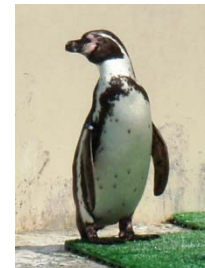
<http://www.biolib.cz/en/taxonomic/id177357/?taxonid=651226>



<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 found during the clinical phase and also the brief necropsy especially focused on the body cavity.



Osaka Municipal Tennoji
Zoological Gardens



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.



Osaka Museum of Natural History

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

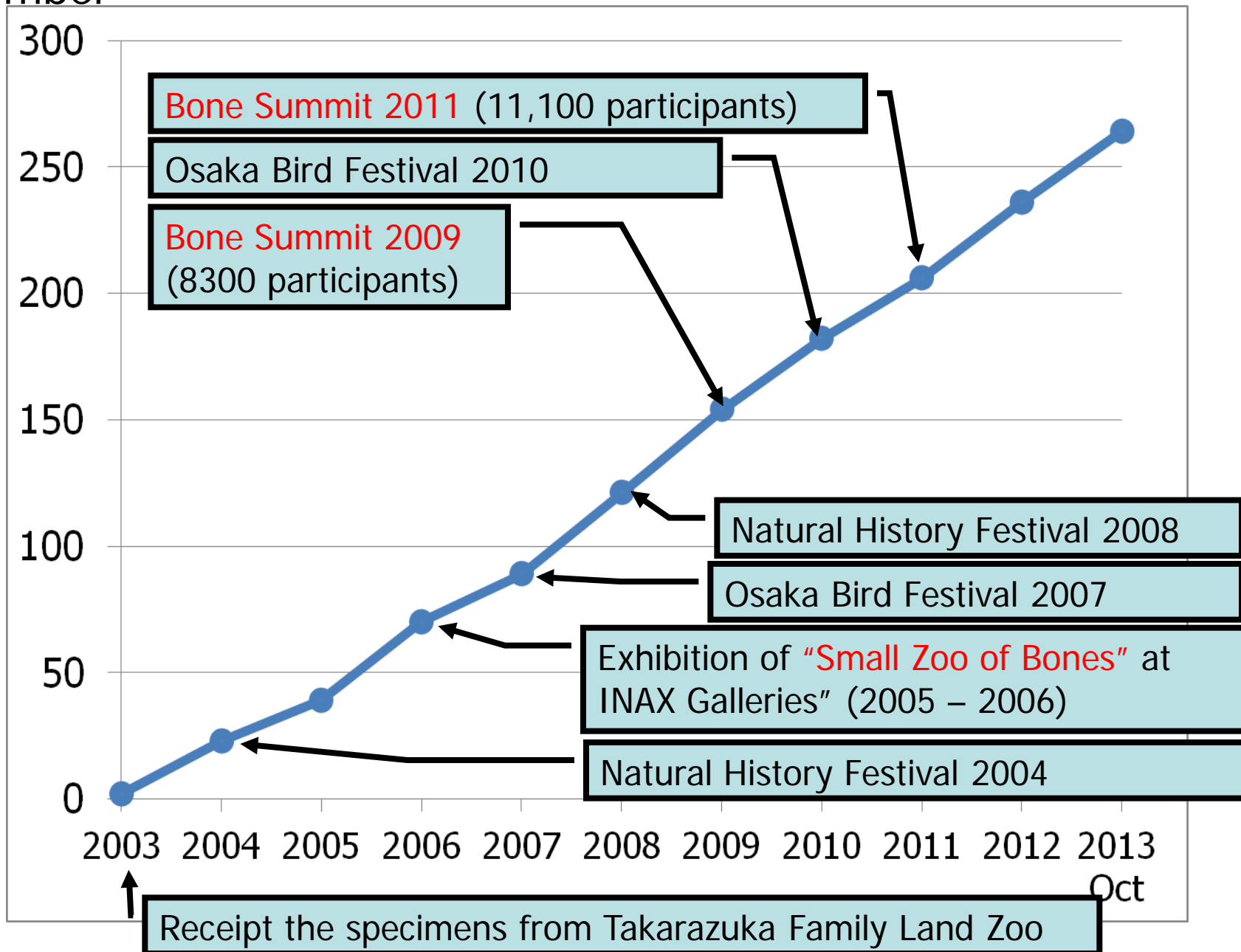
Naniwa Hone-Hone Dan

Activity:

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

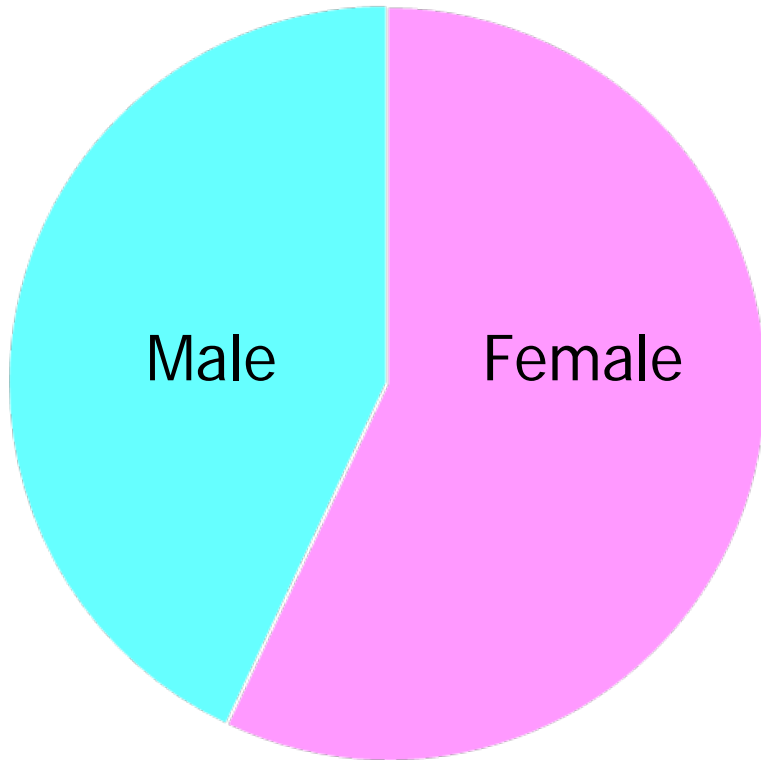


Member

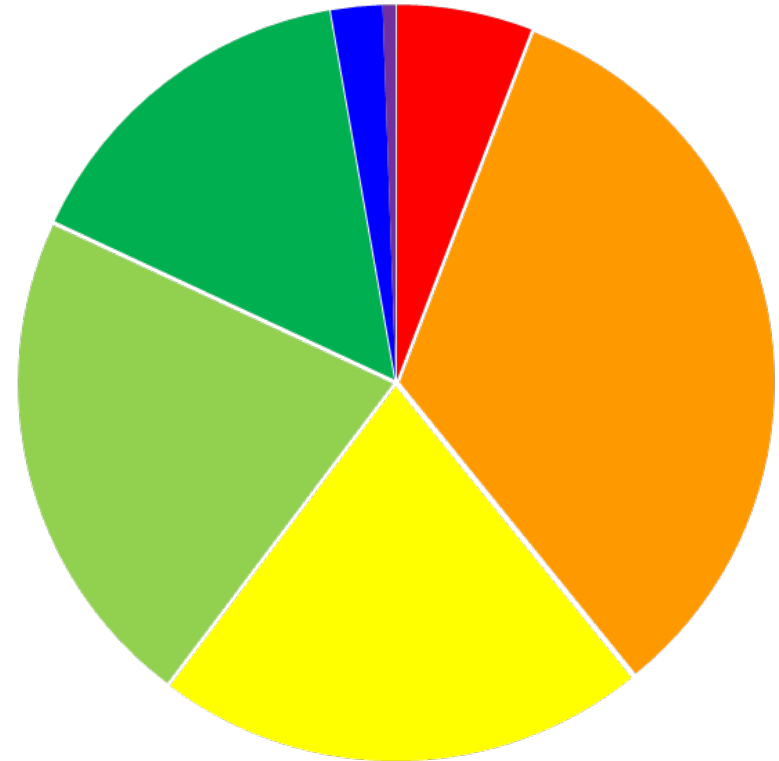


Member

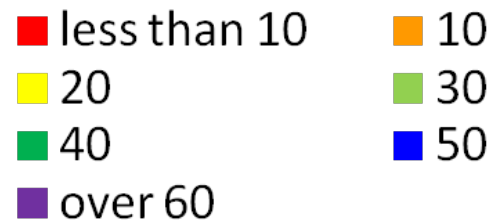
Gender



Age



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



Where do carcasses come from?

Road Kill



Hunted



Eliminated



Bird strike



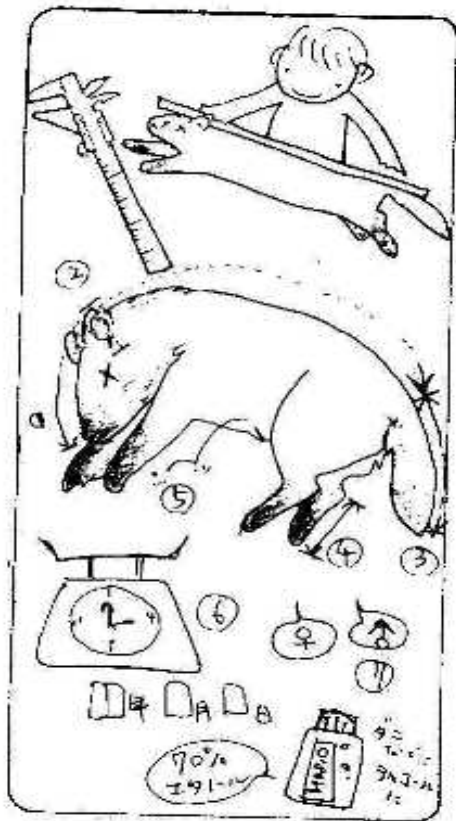
Zoo



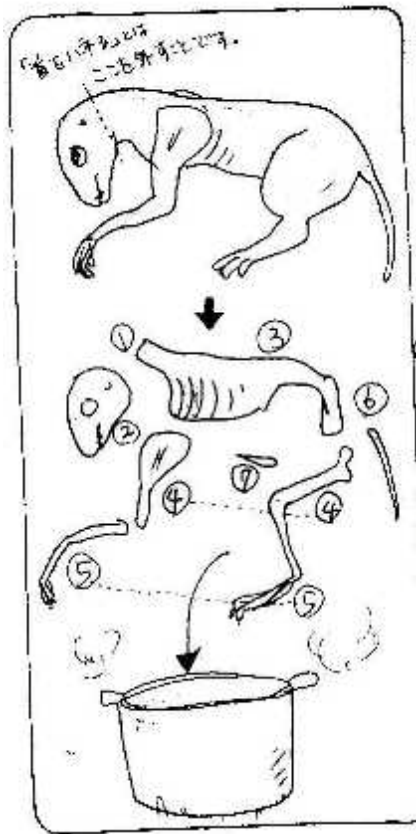
Stranding



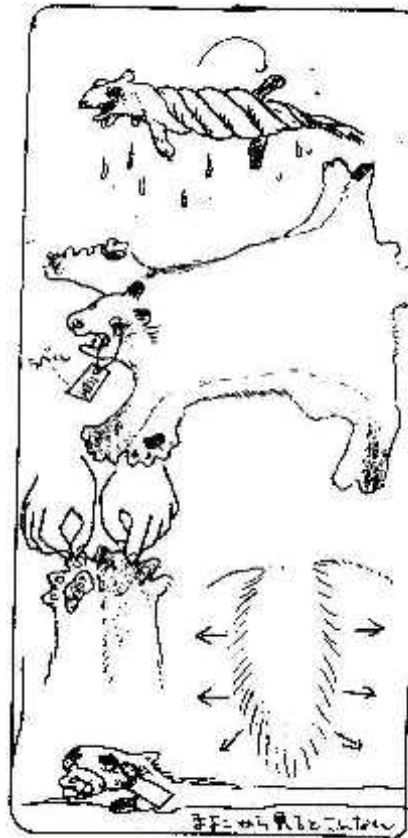
SOP (Standard Operating Procedures) - Mammalian -



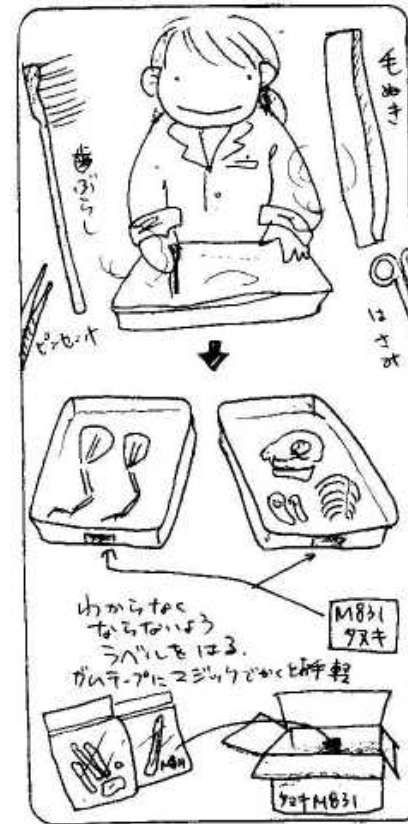
Measurement



Boiling



Tanning



Cleaning

Package

Skinning

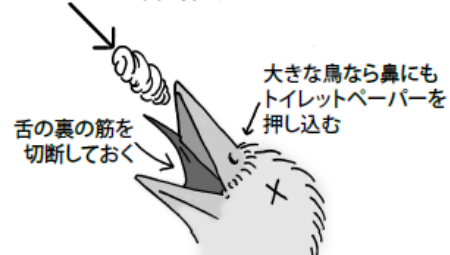
Necropsy



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
頸椎を外す

胸筋を切り開き
肩関節を外す

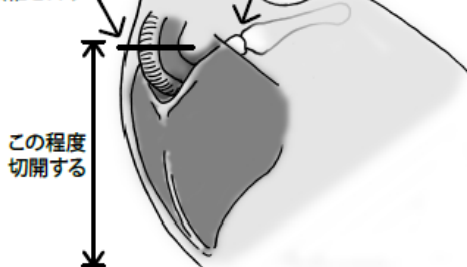
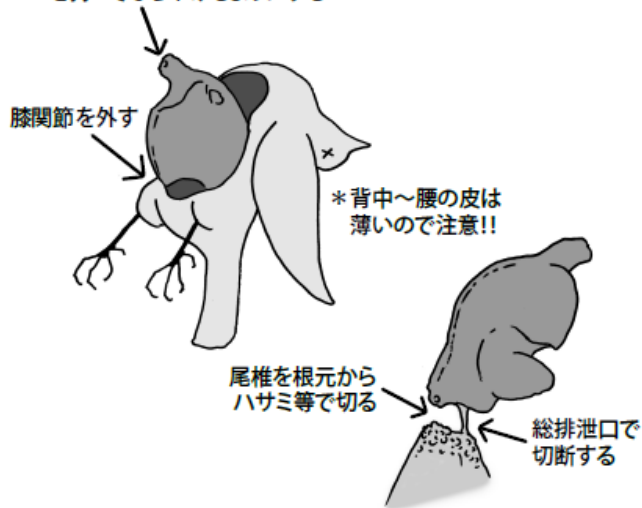
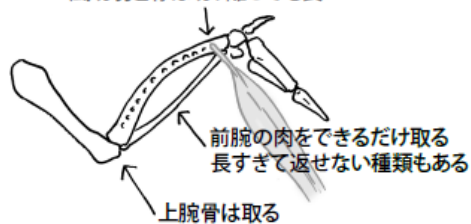


Illustration:
Atsushi Satake

ここを持ってぶら下げようにする



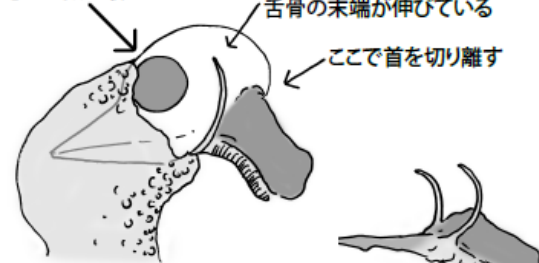
風切羽と骨は切り離しても良い



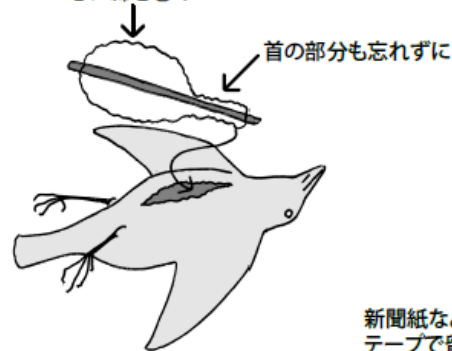
大腿骨は肉側にある



眼球を潰さないように注意して抜き取る

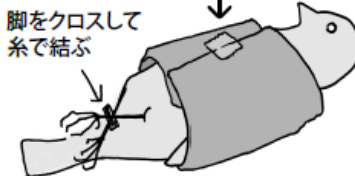


芯に綿を巻く



新聞紙などで巻きテープで留める

脚をクロスして糸で結ぶ



なにわホネホネ団



Skin

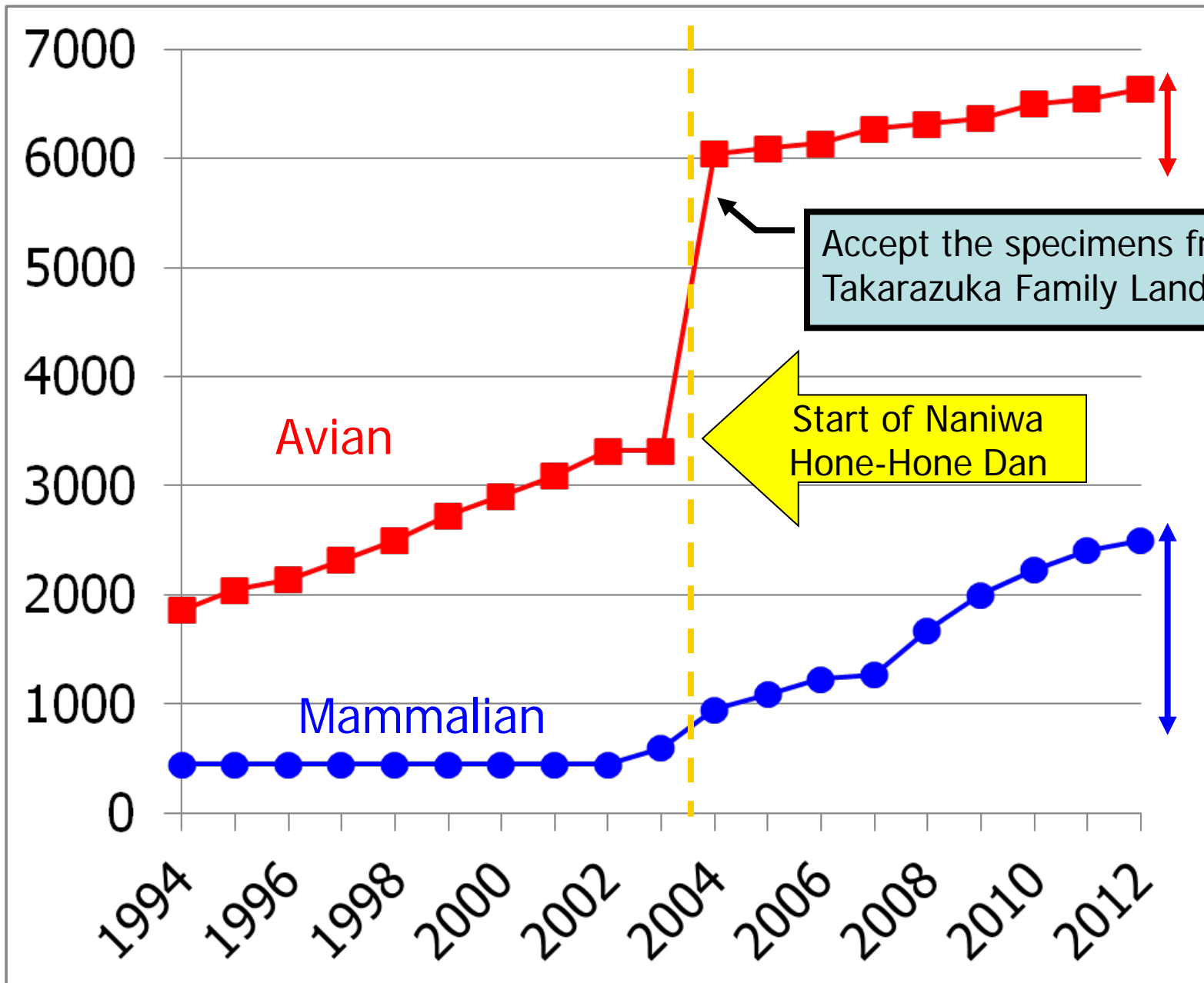
Bone



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

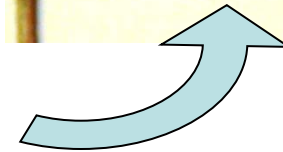
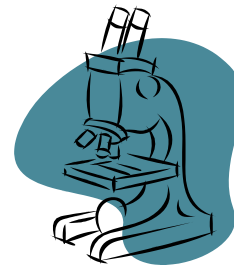
Case report of hypertrophic pulmonary osteoarthropathy observed in a Japanese raccoon dog (*Nyctereutes procyonoides*).



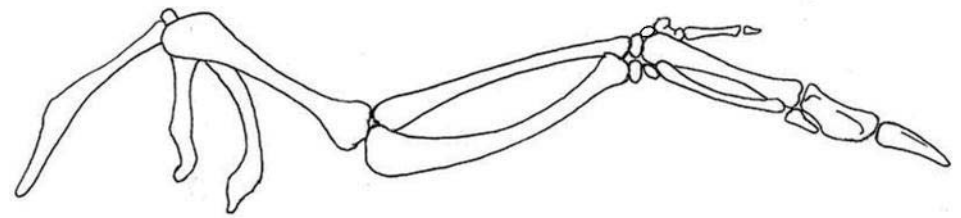
El-Dakhly K, Inui K, Uranno N, El-Nahass el-S, Kakogawa M, Hirata A, Kimura J, Sakai H, Yanai T. J Zoo Wildl Med 2012 Dec; 43(4):953-5.

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

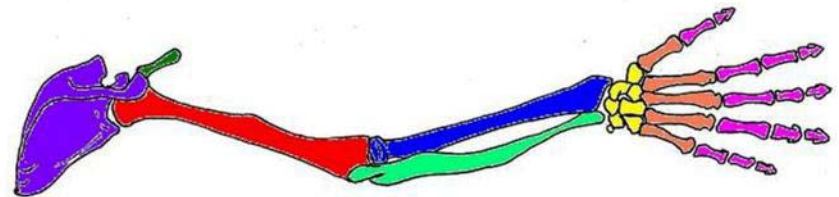
For education



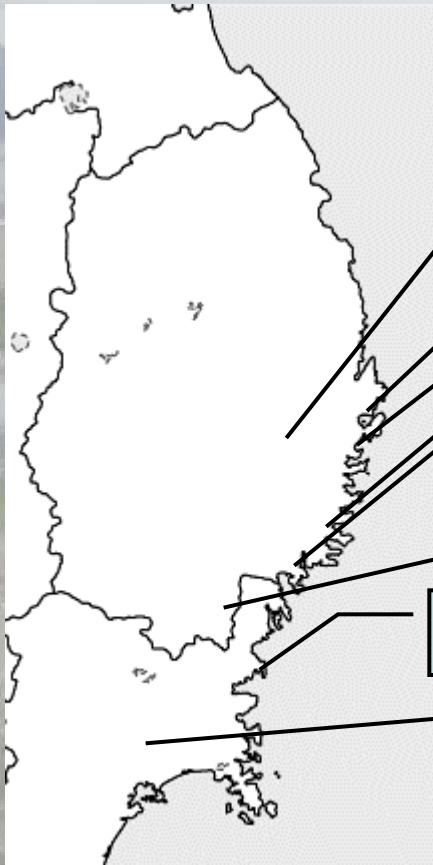
Relationship of human and wildlife



Let's paint like human bones



Tohoku support: Delivery workshop (Osaka Natural History Center)



Tohno City (2011 Sep)

Yamada-cho (2011 Sep and 2013 Nov)

Ootsuchi-cho (2012 Dec)

Oofunato City (2011 Sep, 2012 Dec and 2013 Sep)

Rikuzen-takada City (2012 Dec and 2013 Nov)

Ichinoseki City (2013 Apr)

Minami-sanriku-cho (2012 Oct, 2013 Jul and 2014 Feb)

Sendai City (2014 Feb)

Iwaki City (2012 June)



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.

A group of people, including several women, are seated at a long table in a laboratory or kitchen setting. They are focused on preparing samples, likely for a diagnostic test. The table is covered with various trays, containers, and tools. In the background, there are more people standing near a counter, and a kitchen area with an oven and sink is visible. The overall atmosphere is one of a busy, professional workspace.

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)