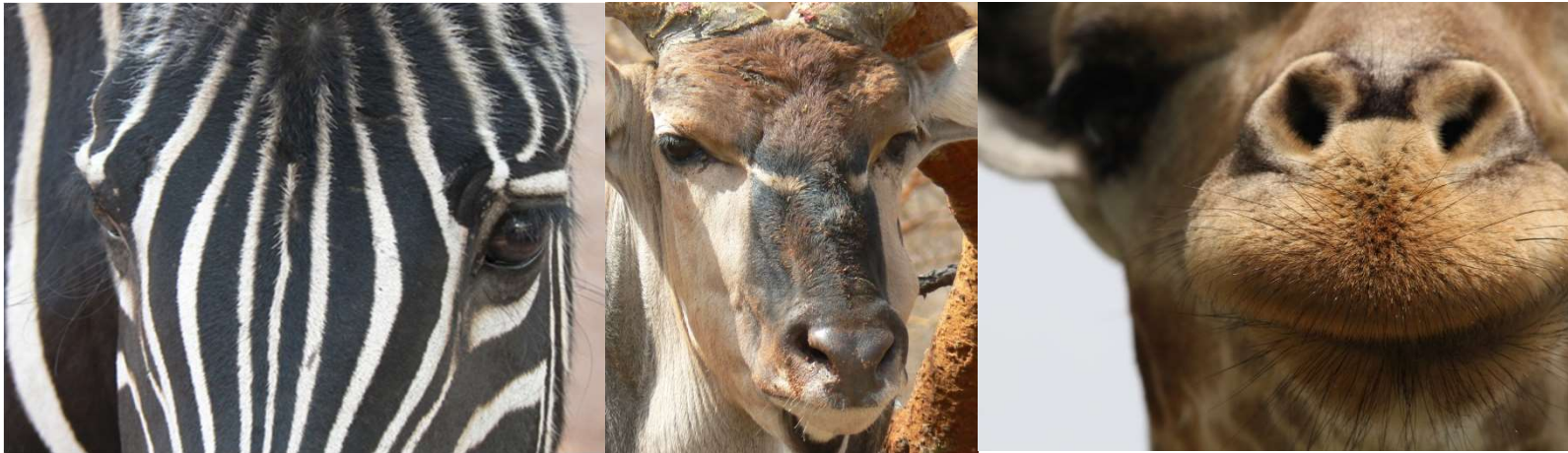




Stejní či jiní?

aneb **Jak poznávat na první pohled stejné jedince jednoho druhu**

Univerzita třetího věku – ZS 2019/20

**Ing. Magdalena Miřejovská, Ph.D.
mirejovskamagdalena@gmail.com**

Stejní či jiní?

Program hodiny

- ▶ Jsou stejní?
- ▶ Přírodní značky
- ▶ Umělé systémy značení
- ▶ Význam označování zvířat
- ▶ Případové studie: Identifikace žiraf
 Identifikace antilop Derbyho



Stejní či jiní?



Jiní !



Stejní či jiní?

Dvojčata a vícерčata

- Jednovaječná x vícevaječná



Multiparní druhy



Vícevaječná vícерčata



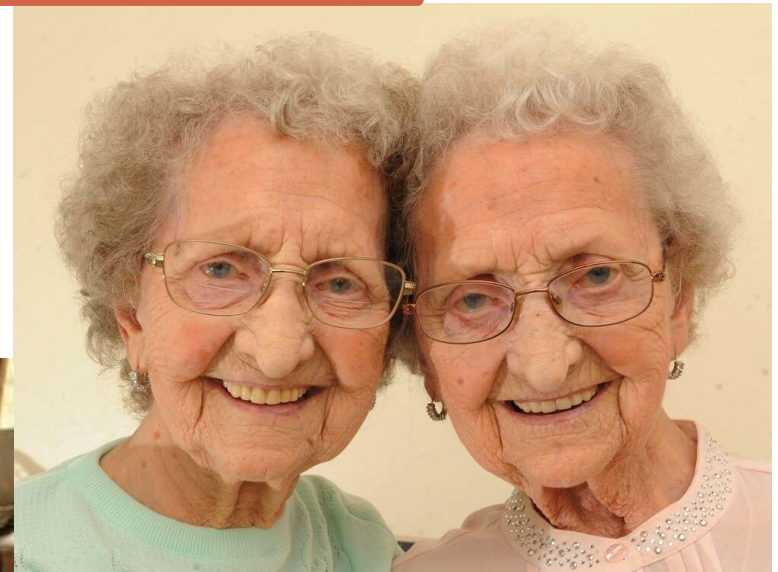
Stejní či jiní?

Dvojčata a vícерčata

- Jednovaječná x vícевaječná



Jednovaječná vícерčata



Stejní či jiní?

Dvojčata a vícerčata

- ▶ Jednovaječná x vícevaječná

Irský vlkodav Cullen a Romullus



Stejní či jiní?

Dvojčata a vícерčata

- ▶ Pásovec devítipásý

- ▶ Polyembryonie

- ▶ rýhující vajíčko rozdělí na více embryí



Identická (monozygotická) čtyřčata

four babies of the same sex, at a time. They are perfect identical quadruplets.

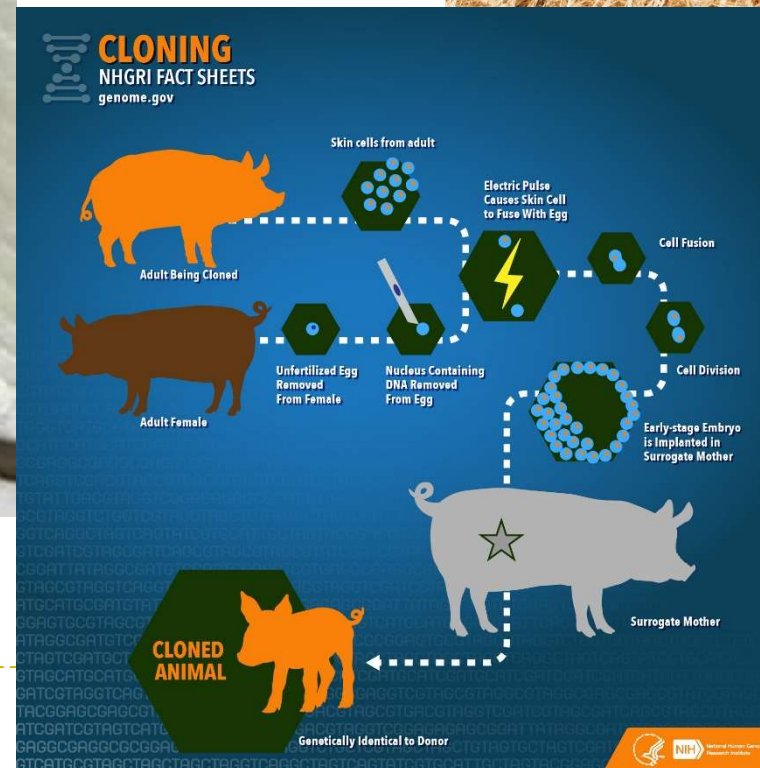


DailyRandomFacts.com

Stejní či jiní?

Klony

- ▶ Ovce Dolly
- ▶ Makakové Zhong Zhong a Hua Hua



Jiní!



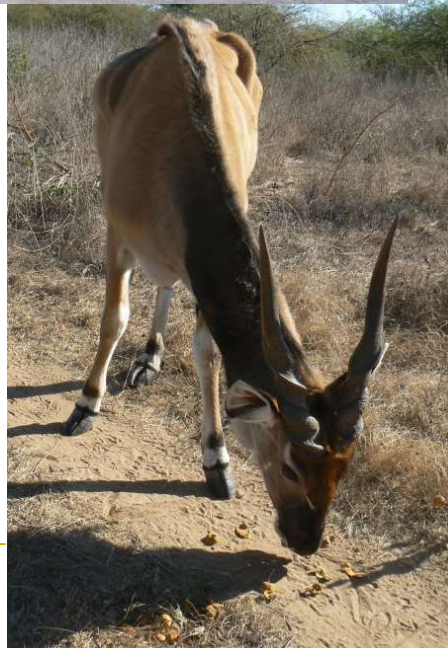
Přírodní značky

- ▶ Pohlaví
- ▶ Velikost
- ▶ Zbarvení a vzory
- ▶ Jizvy, šrámy a zranění
- ▶ Rohy, parohy
- ▶ Hmatové vousky
- ▶ Víry v srsti
- ▶ Vrásky
- ▶ Výraz (v „obličejí“)
- ▶ Abnormality
- ▶ Zobák
- ▶ ...

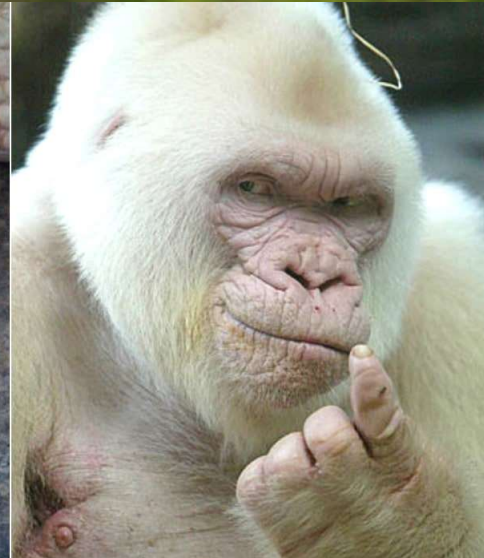
- ▶ **Trvalé či dočasné**



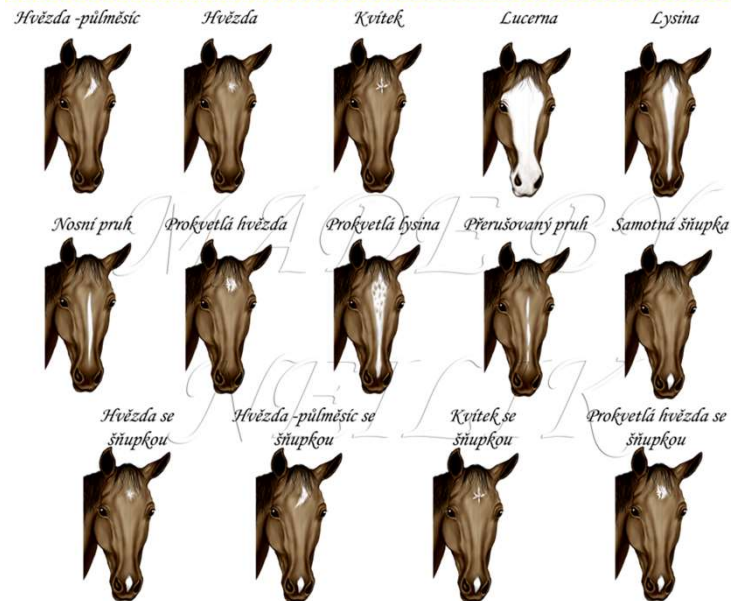
Velikost a tvar těla



Zbarvení



Odznaky

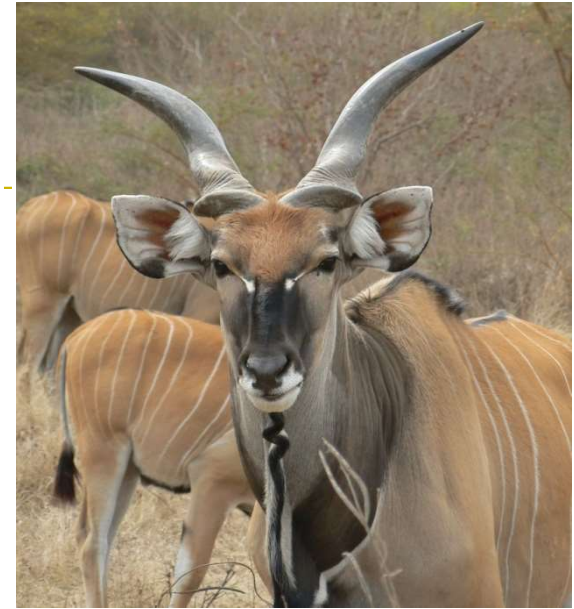


Zuzana
Buzáková

Vzory



Rohy, parohy ...



Hmatové vousky

- ▶ Lvi
- ▶ Lední medvědi
(Anderson et al. 2007)

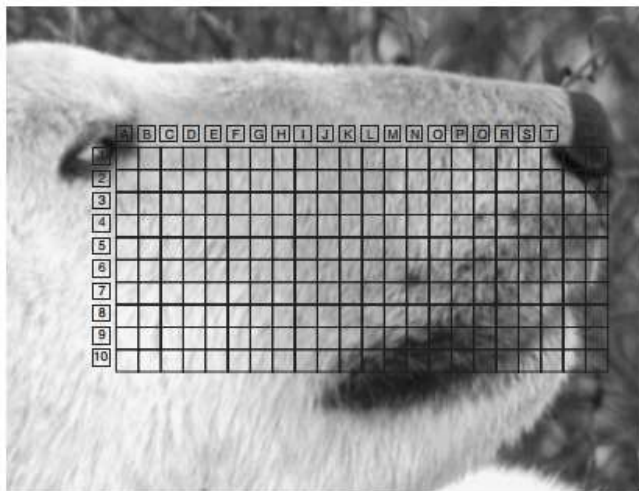
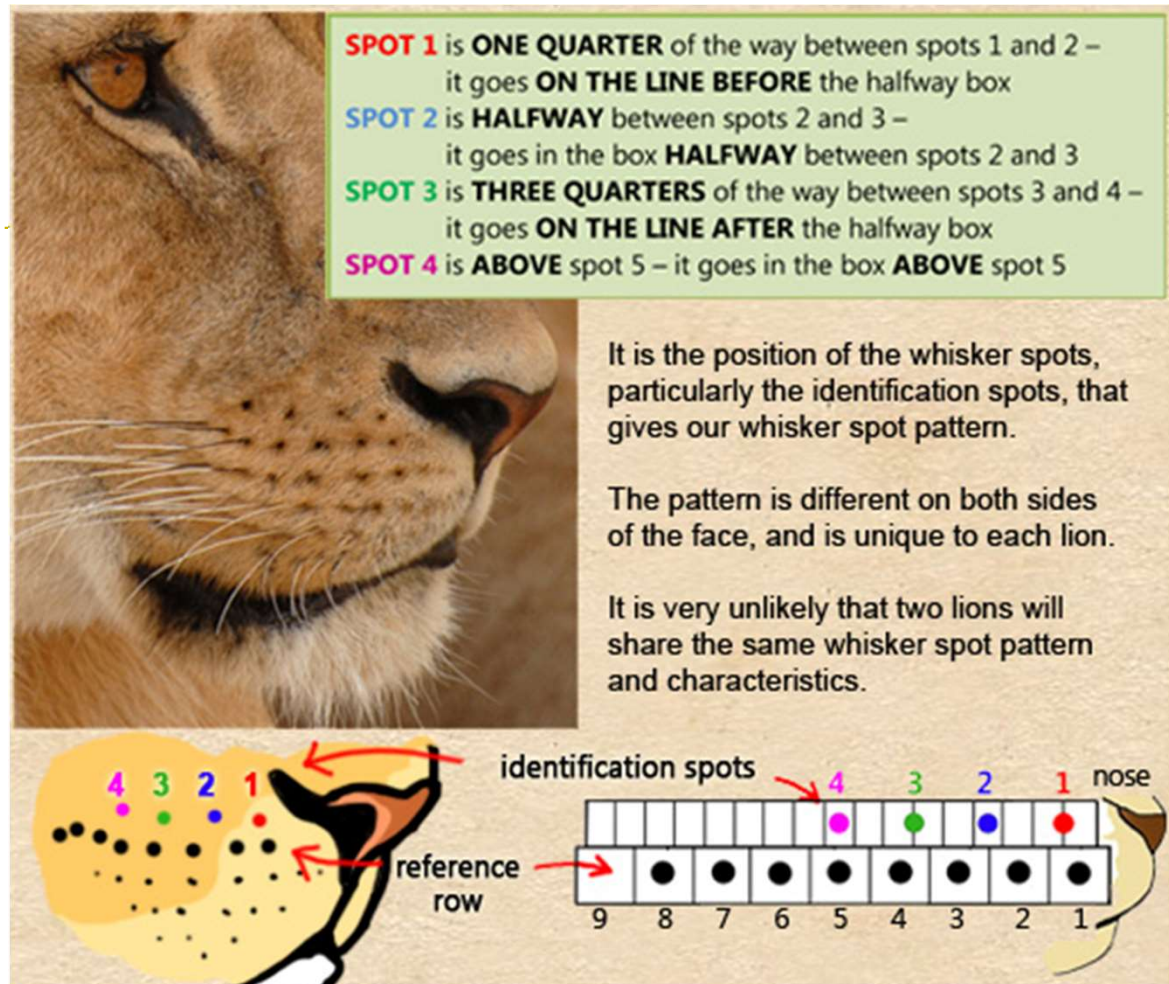
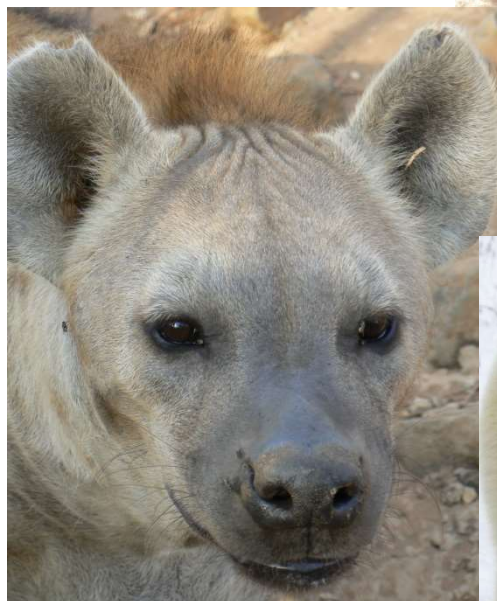


Figure 1 Grid superimposed on polar bear *Ursus maritimus* photograph. The grid divides a spot pattern into characters, with each character having a value of either 'present' or 'absent,' depending on whether a spot occurs in the corresponding cell.

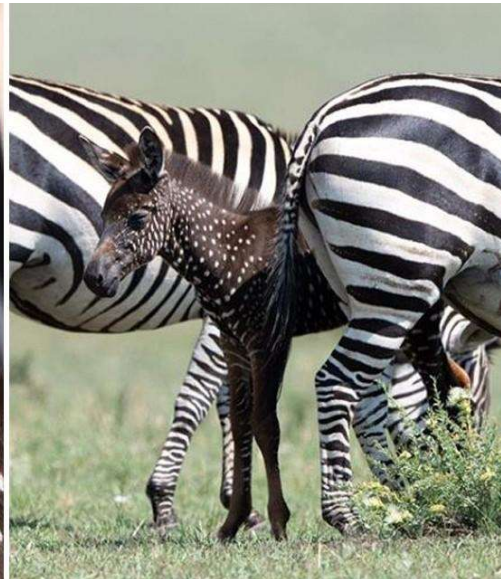
Jizvy a zranění



Výraz



Abnormality



Různé druhy – různé systémy



Ptáci – Zobák a značky na hlavě

- ▶ **Labuť malá** (Scott 1978)
- ▶ **Orlovec říční** (Bretagnolle et al. 1994)



Osprey fledgling
© Photo by Kim Taylor <http://www.flickr.com/photos/kim/>



blog.jmlynch.org

176 FIELD IDENTIFICATION OF OSPREY • Bretagnolle et al.

J. Wildl. Manage. 58(1):1994

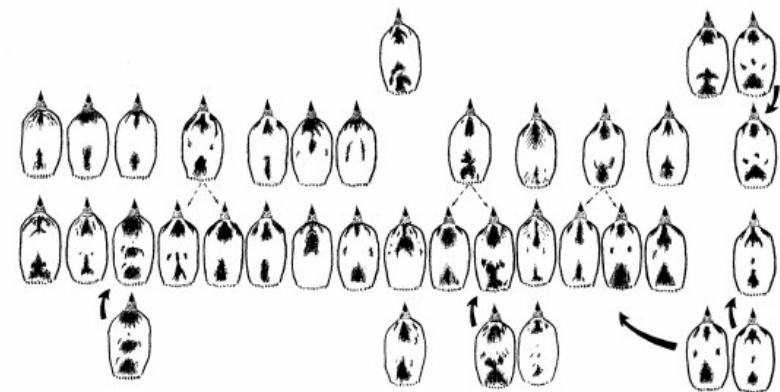


Fig. 1. Dorsal views of head pattern of 33 different ospreys in Corsica. Each column represents a nesting aerie ($n = 14$; some were not used either in 1991 or 1992). The 2 top lines and the 2 bottom lines represent male and female head patterns, respectively; the first and fourth lines from the top represent 1991 birds, the second and third 1992. Arrows link the same individual (checked with metal band) in different years (note that the head pattern has not changed); a dotted arrow means that a male mated successively with 2 females, as shown by their different head patterns.

Obojživelníci a plazi – vzory na zádech a břiše, skvrny, pruhy ...

- ▶ Mlok skvrnitý – skvrny
- ▶ Čolek obecný – skvrny na břiše



www.wildlife.state.nh.us



www.jugbay.org

Speciální systémy identifikace zvířat

► Žirafa síťovaná (*Giraffa camelopardalis reticulata*)

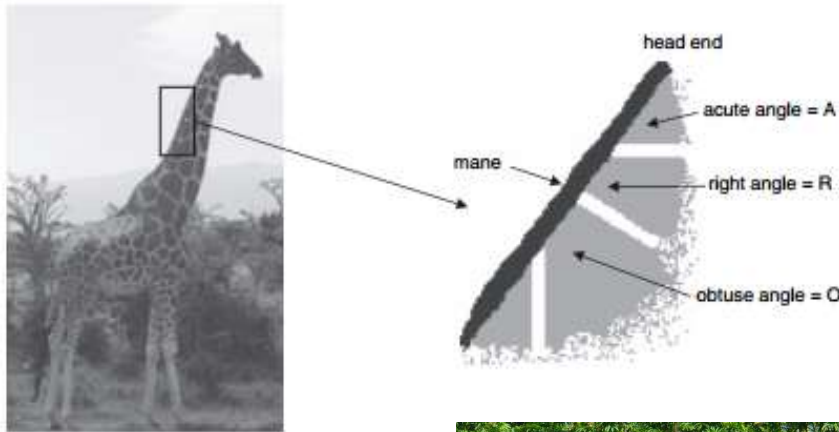
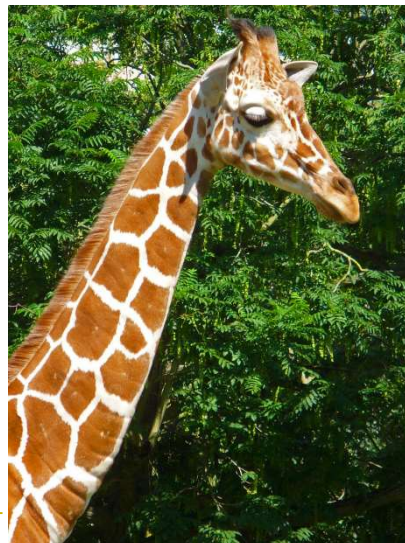


Fig 1 Photograph of right-hand side of a reticulated giraffe showing neck pattern and diagram illustrating the three types of line recorded. The giraffe in the photograph has the code ROAARAAROO



commons.wikimedia.org

Necks and networks: a preliminary study of population structure in the reticulated giraffe (*Giraffa camelopardalis reticulata* de Winston)

Bryan Shorrocks^{1,*} and Darren P. Croft²

¹Environment Department, University of York, Heslington, York YO10 5DD, U.K., ²College of Natural Sciences, School of Biological Sciences, University Wales Bangor, Bangor, Gwynedd LL57 2UW, U.K.

Abstract

This paper describes a method of scoring the neck pattern of reticulated giraffes as a simple code that can be searched for in an Excel spreadsheet. This enables several hundred individual giraffe to be recognized and repeatedly found within a database. Possible sources of error are described and quantified. Data on group size, dispersal within groups and social network patterns are described. The latter is facilitated using Ucinet 6.85 for Windows, a software package that helps to visualize and analyse such networks.

Key words: group size, Kenya, reticulated giraffe, social networks, spacing

Résumé

Cet article décrit une méthode pour noter le pattern du cou des girafes réticulées comme un code simple qui peut être consulté dans un tableau Excel. Cela permet de reconnaître individuellement plusieurs centaines de girafes et de les retrouver facilement dans une base de données. Plusieurs sources d'erreurs sont décrites et quantifiées. Les données sur la taille des groupes, la dispersion entre les groupes, et les schémas de réseau social sont décrits. Ce dernier est facilité par l'utilisation d'Ucinet 6.85 pour Windows, un logiciel qui vous aide à visualiser et à analyser de tels réseaux.

prelude in many cases to local extinction. The declining 'reticulate' race, of the giraffe (*G. c. reticulata*), in the Laikipia region of central Kenya may be such a case and we urgently require field studies on this species to inform conservation programmes.

The range of the reticulated giraffe extends from central Kenya northwards into Ethiopia and Somalia. According to the 'African Antelope' Database (East, 1999), the status of the reticulated giraffe in Ethiopia and Somalia is uncertain but almost certainly declining (probably not more than a few hundred individuals). In Kenya also, it is declining. For example, in the Laikipia District, Muchoki (2000) used aerial surveys of the Ewaso Nyiro Basin to provide the following numbers of reticulated giraffe: 6398 (1977), 5419 (1990), 2118 (1994) and 2903 (1997). This represents over a 50% decline in the 20 year period. What is more this has probably continued, since the IUCN survey (East, 1999) gives a figure of only 1510 individuals for Laikipia. However, there have been no detailed population studies on the reticulated giraffe in Laikipia. Much of what we know about the population ecology of giraffe has come from the studies on Masai giraffe (*G. c. tippelskirchi* Matschie) in southern Kenya and northern Tanzania. It is important that we obtain this information for the reticulated race, in its more arid northern environment.

In order to understand processes that may lead to population decline, it is necessary to understand factors that influence individual survival and fitness. Whilst

Identifikační karty

I.D. Number 95039

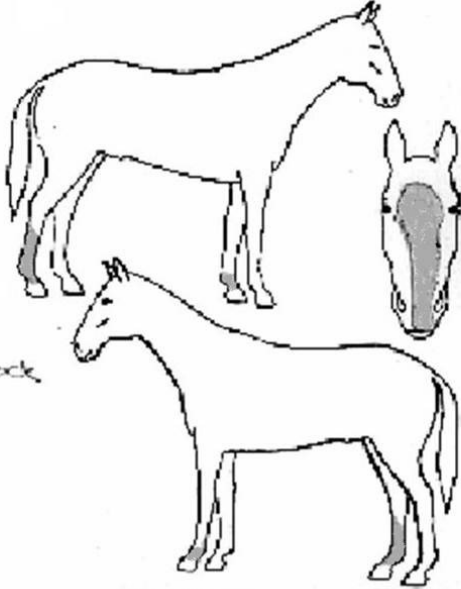
Colour C/n

Sex ♂

Date of Birth 1-5/11/95

Height

Remarks
Blk. n. r. s. x to b. r. s. x h. o. c.
l. f. s. x to f. e. h. o. c.
4 white hooves



horsewyse magazine
Horse Identification Chart

Complete both sides of this chart. If your horse strays or is stolen, supply the completed chart to Police when reporting the loss of your horse. Keep a current photo of your horse with this chart.

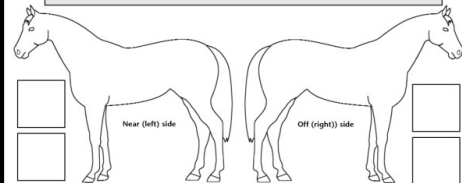
OWNER DETAILS

Name:
Address:
Postcode:
Phone (work): (home):
Mobile: Email:
Alternative contact: Phone:

HORSE DETAILS

Horse's name: Normally agitated at:
Sex: ☐ Stallion ☐ Mare ☐ Gelding
Height in hands: Age: Regular diet is:
Breed: Conformation features (eg. cow hocks):
Body colour:
Mane & tail colour:
Leg colour: Health conditions:
Mane falls on:
☐ Near side ☐ Off side ☐ Hooped Behaviour problems (afraid of men etc.):
Microchip details (if any):

CrimeStoppers Ph 1800 333 000



BONHEUR

Scientific name: *Taurotragus derbianus derbianus* Identification number: 1037

Name: Bonheur English name: Western Derby eland
Date of birth: 18.12.2006 Birth type: in captivity
Sex: male Birth location: Banda 1, Senegal
Sire: Nickolo Hybrid status: not a hybrid
Dam: Bembon Current location: Banda 1, Senegal
Number of stripes on: left flank/ right flank 14/14
Other characteristics:

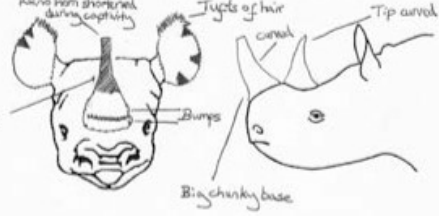


88

BLACK RHINO INDIVIDUAL IDENTIFICATION RECORD
Reserve/Sanctuary:

NUMBER: 29 NAME: Kimald SEX: ♂
Notch Code: 29 Origin: Born in Namib NP Birth Date: 01/01/63
Old/New? Mother: Unknown Father: Unknown

Dark



CHARACTERISTICS:
- Has long curved horns. Easily recognised by shape of the horns.
- Differs from Adam because of age and back of horn more curved + longer.
- Obvious bump on front base and base very wide.

RHINO HISTORY:
- Rhino notched recently during captivity on 3rd May 2005

CALVES:

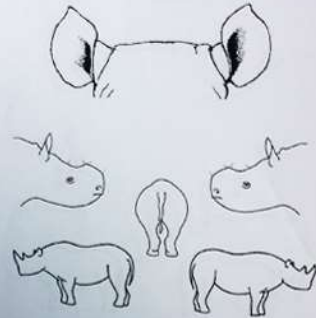
RANGE:
Near Kingfisher, no 30, 26 and on rare occasions in the forest area.

GROUP COMPOSITION:
Mostly solitary male

<https://portals.iucn.org>

BLACK RHINO INDIVIDUAL IDENTIFICATION RECORD
Reserve/Sanctuary:

NUMBER: 1024 NAME: KADAMBA SEX: Male
Notch Code: 1024 Origin: Namibia Birth Date: 1980-08-08
Old/New? Mother: Unknown Father: Unknown



CHARACTERISTICS:

RHINO HISTORY: 18 has Natural Notched to see drawn.
Water

CALVES:

RANGE:

GROUP COMPOSITION:

<https://blogs.wwf.org.uk>

Někdy si ale potřebujeme pomoci...



Umělé systémy značení zvířat

- ▶ Tetování
- ▶ Ušní známky
- ▶ Kroužky
- ▶ Vruby
- ▶ Obojky
- ▶ Výžehy
- ▶ Vymrazování
- ▶ Čipy
- ▶ ...



Umělé systémy značení zvířat

Trvalé

- ▶ po celý život zvířete
- ▶ tetování
- ▶ ušní vruby
- ▶ výžehy
- ▶ ...

Dočasné

- ▶ zvyšují viditelnost zvířete
- ▶ možnost použít v kombinaci
- ▶ barevné značky
- ▶ výstřihy srsti
- ▶ ...



Umělé systémy značení zvířat

Neinvazivní

- ▶ Obojky
- ▶ Kroužky
- ▶ Zvonky
- ▶ Barevné značky
- ▶ ...

Invazivní

- ▶ Tetování
- ▶ Znamky
- ▶ Transpondéry
- ▶ ...



Umělé systémy značení zvířat

Ideální značení zvířat

- ▶ stálé
- ▶ rozpoznatelné na dálku
- ▶ levné
- ▶ humánní
- ▶ estetické
- ▶ jednoduché použití



Tetování



Ušní známky



Kroužky a jiné značky



Kroužky a jiné značky



www.alducks.com/

Use "Go Back" on your Browser to return to previous page



<http://wildpro.twycrosszoo.org/>



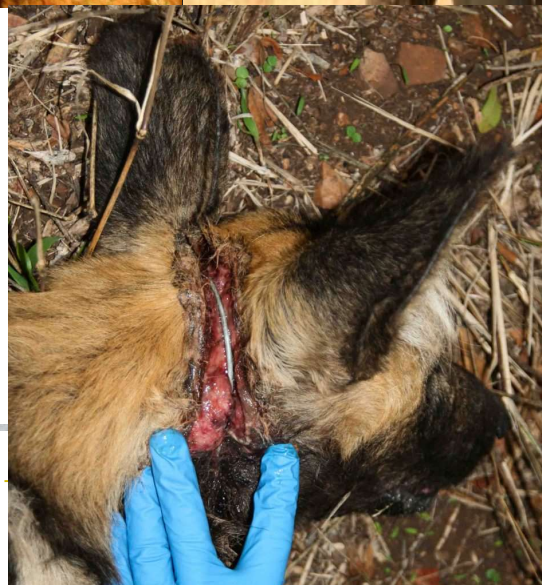
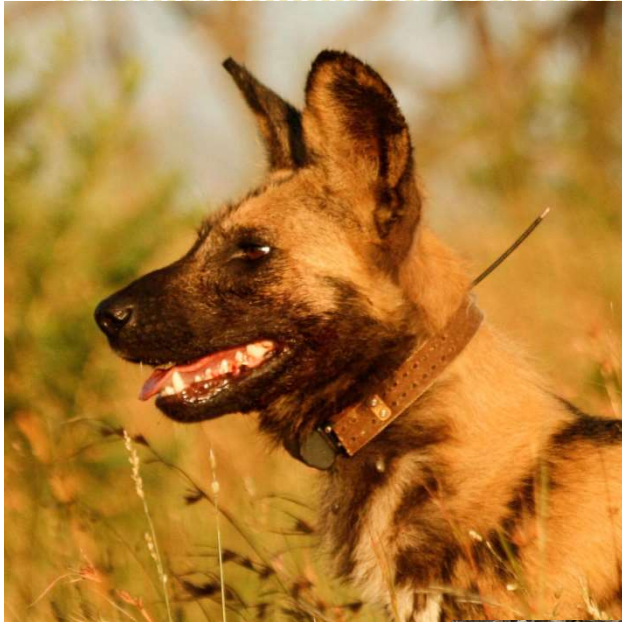
www.pt-ducks.com

Erinaceus europaeus
West European hedgehog

Photograph / Copyright - Dr Nigel Reeve

Plastic tubing can be shrink-fitted onto spines and will remain attached for the life of the spine. Colour coding can be used for identifying individual hedgehogs. Tubing with a numerical coding is now used also. Although not readable at a distance this allows positive identification even if only one piece of tubing remains on a hedgehog

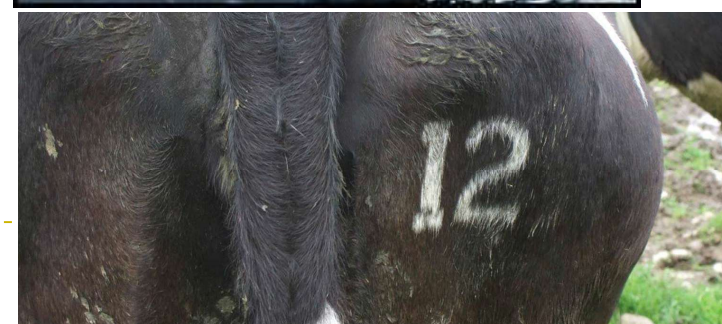
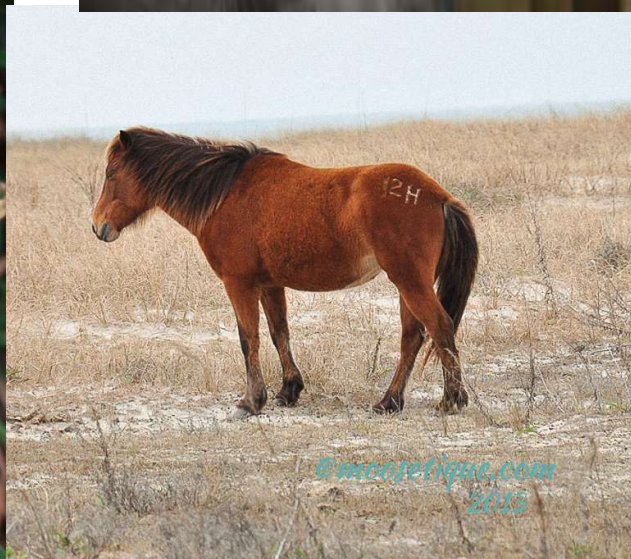
Obojky



Výžehy

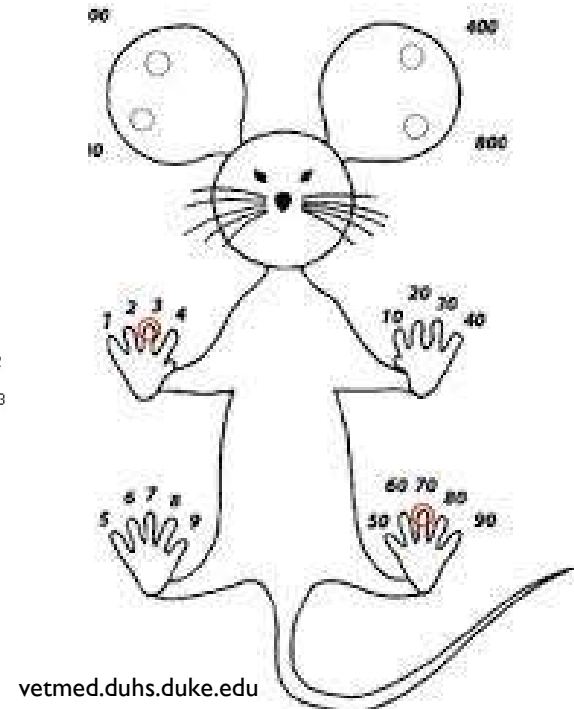
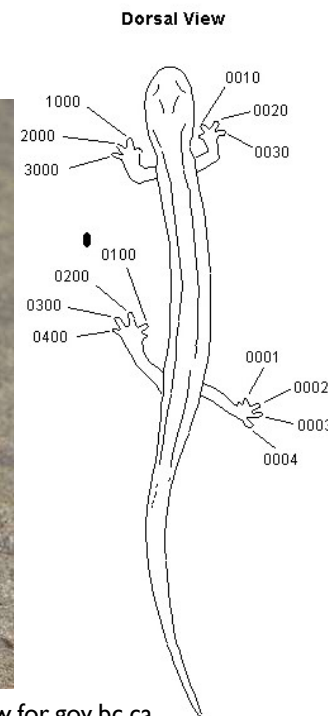


Vymražení



Odstraňování tkání

- ▶ Peří
- ▶ Srst – mechanicky, chemicky, pálení
- ▶ Prsty – hlodavci, obojživelníci
- ▶ Nehty/drápky – ještěrky, ptáci, malí savci
- ▶ Bodliny – ježci

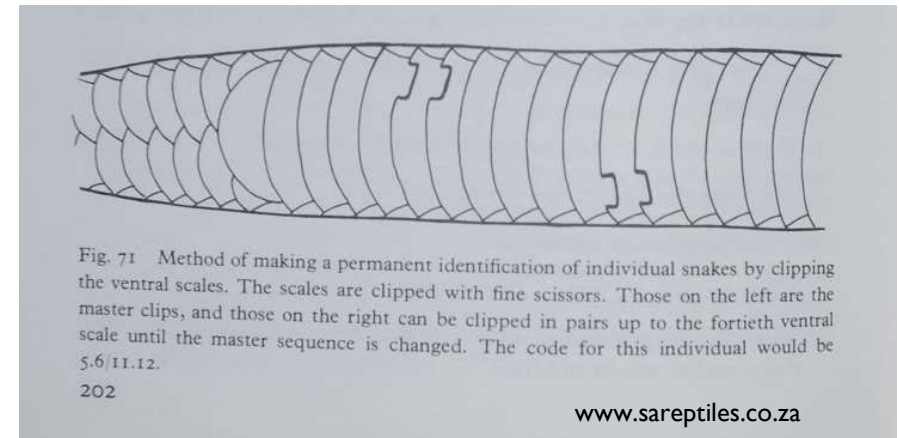


Odstraňování tkání

- ▶ Šupiny – hadi
- ▶ Plovací blány – ptáci a savci
- ▶ Ocas – pulci, mloci, krokodýli



- ▶ Uši



Ušní vruby

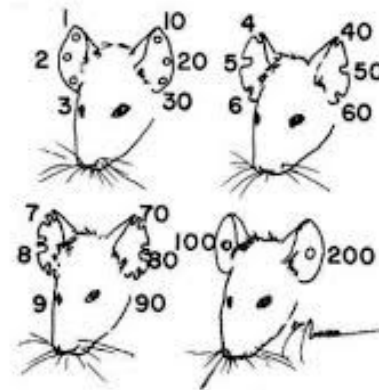
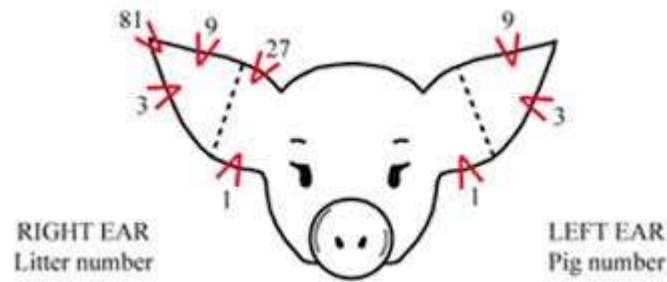
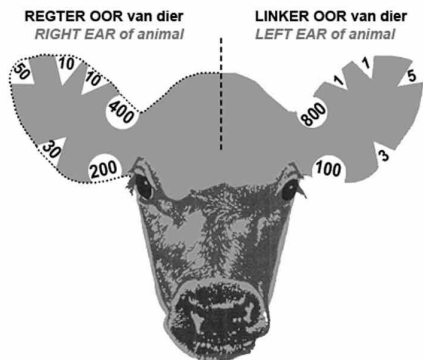
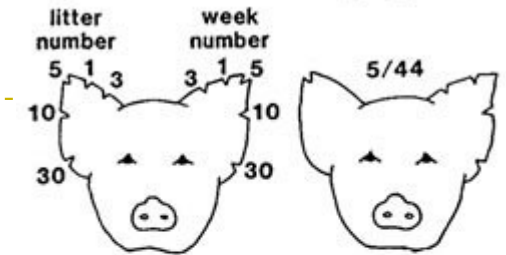
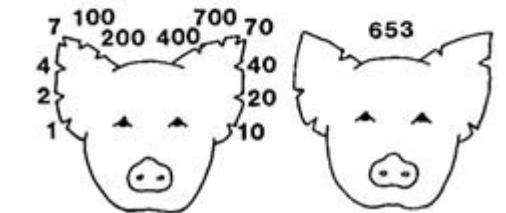


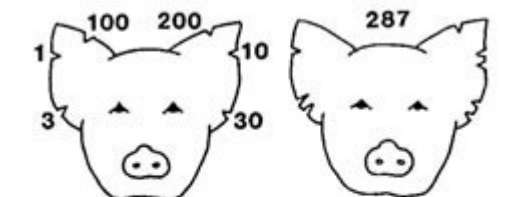
Figure 1. Ear notching systems



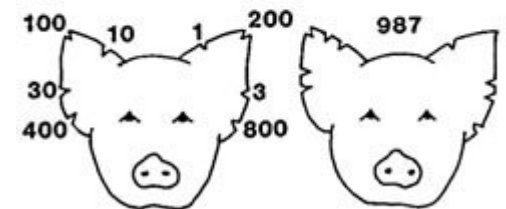
(a) Identifying litter and week of birth



(b) Identifying individual pigs or litters



(c) Identifying individual litters



(d) Identifying individual pigs.



Fig. 1. Ear notch-punch code for identification of rodents. These number codes are used in various combinations to produce the desired number.

Ušní vruby

- Velcí savci
(kopytníci, šelmy, primáti)



Fig. A2.1. Ear notch sites for numeric coding. With one or two notches per ear, the code number (1B99) is the sum of the notches for both ears. For example, $(40 + 10) + (2 + 7) = 59$.

Transpondery

- ▶ většinou mikročip pod kůží



Barevné značení

- ▶ Barevné značky - křídly, barvy ve spreji
- ▶ Odbarvování



Erinaceus europaeus
West European hedgehog

One low-tech way to mark hedgehogs for identification of individuals is by applying non-toxic paint to patches of spines. Different colours and different areas of spines used allow a number of animals in one area to be identified



Význam označování zvířat

Proč je důležité poznat/rozeznat jednotlivé jedince?

- ▶ (Určení majitele)
- ▶ (Často vyžadováno zákonem)
- ▶ Monitoring
 - vývoje
 - produkce
 - příbuznosti
 - reprodukce
 - onemocnění
- ▶ Výzkum
- ▶ ...



Význam označování zvířat



TRAFFIC
the wildlife trade monitoring network



Wildlife Reserves Singapore Group

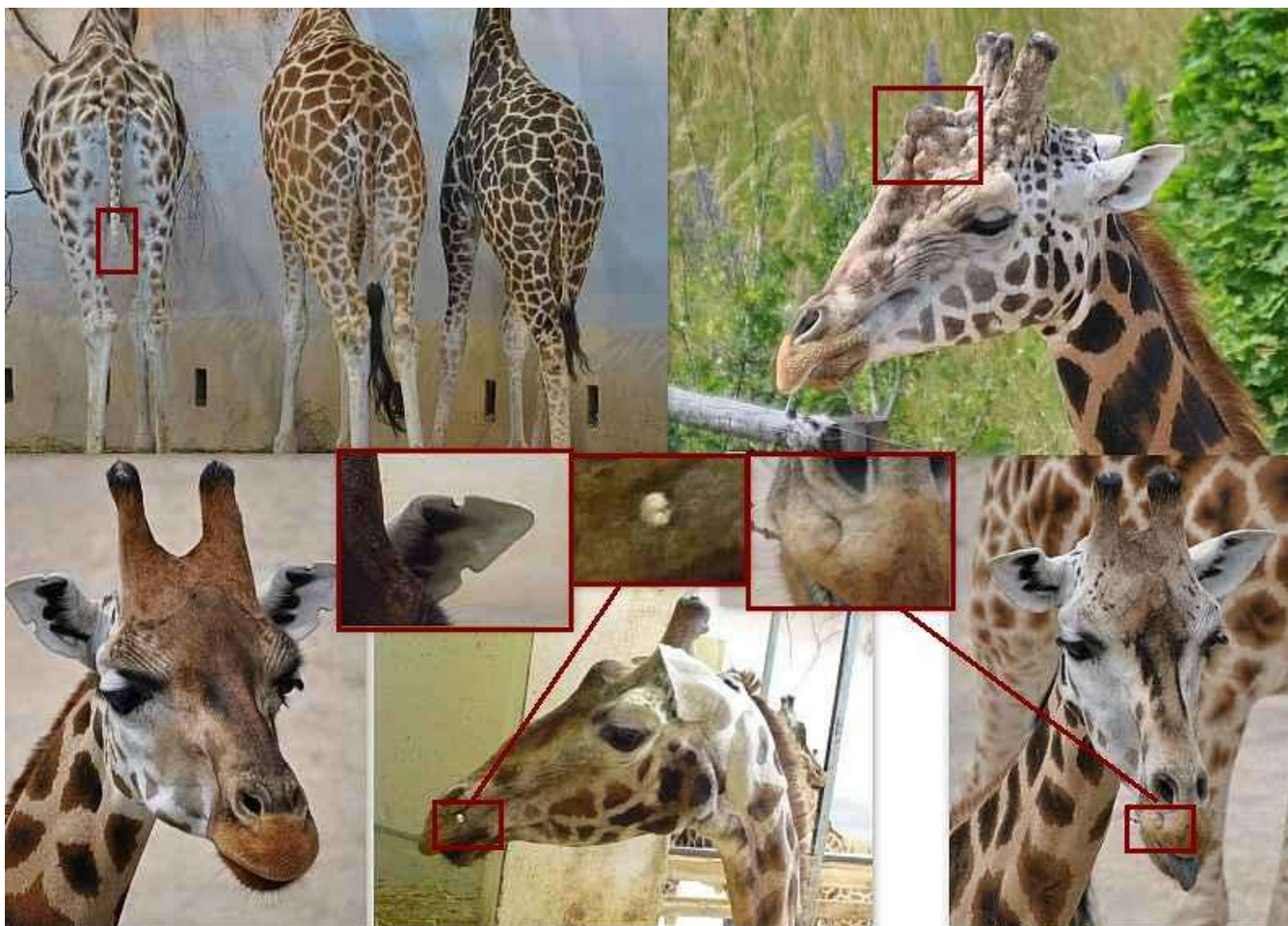




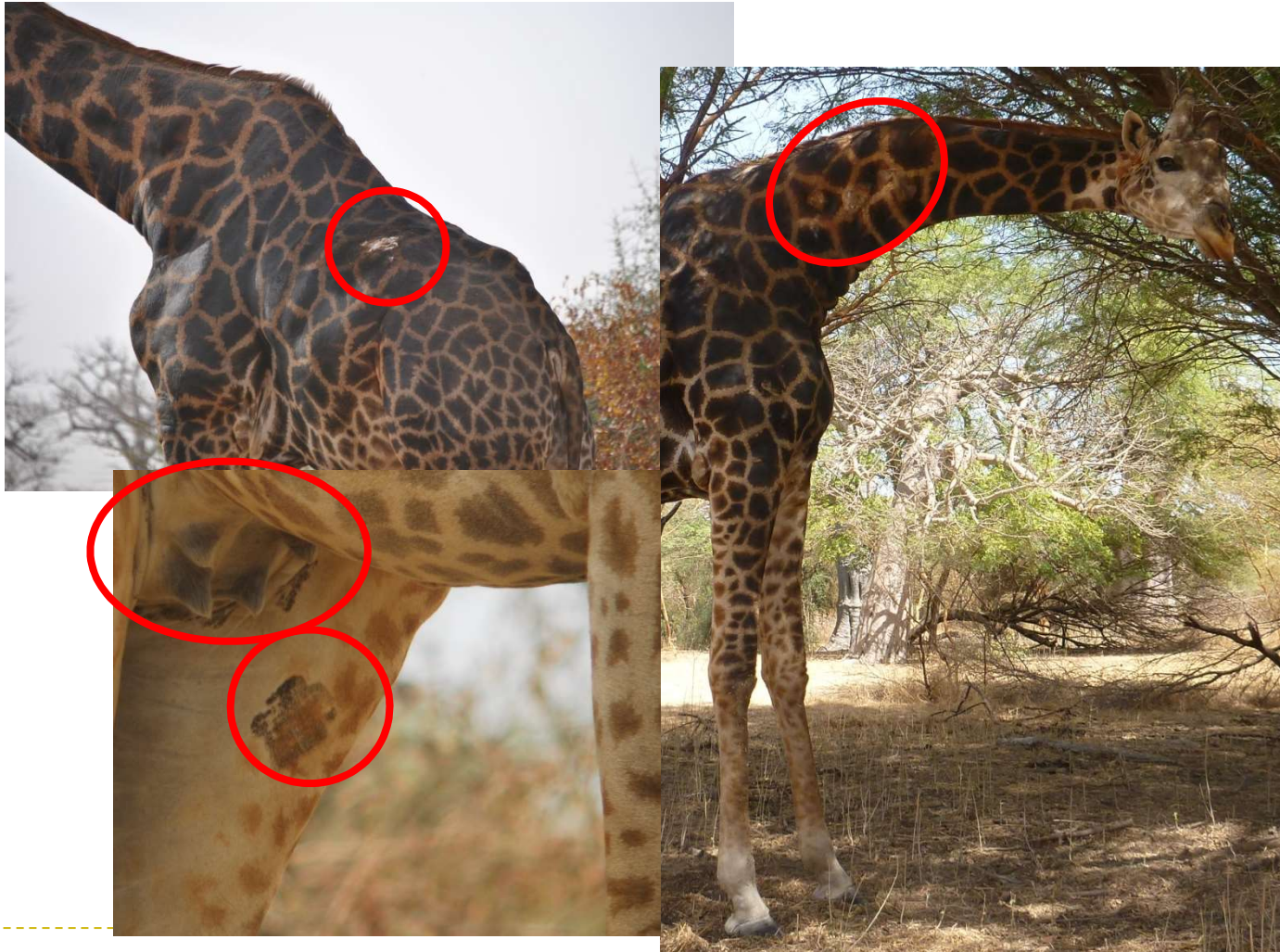
Identifikace žiraf

Etologický výzkum

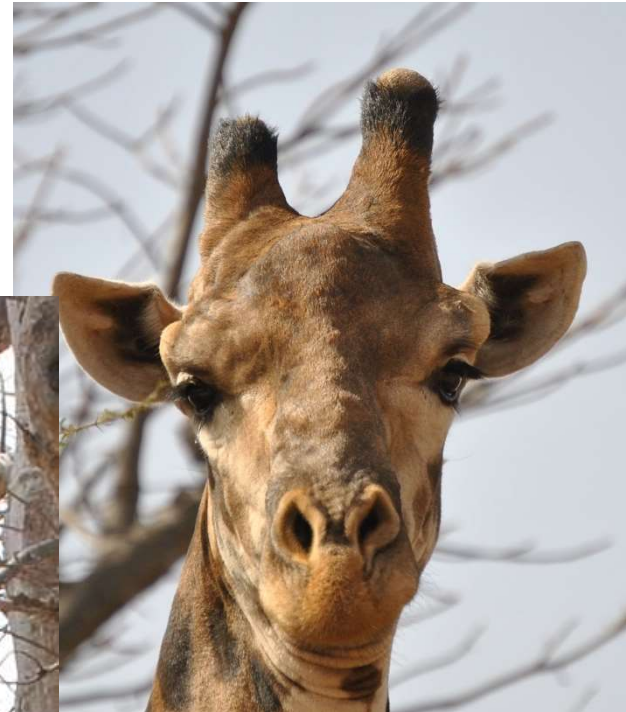
Identifikace žiraf



Identifikace žiraf

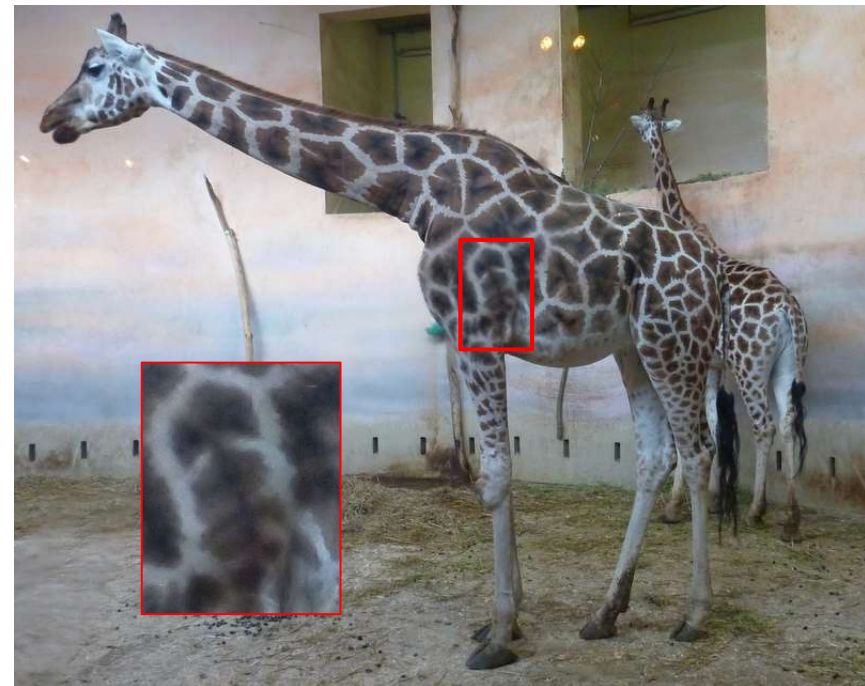
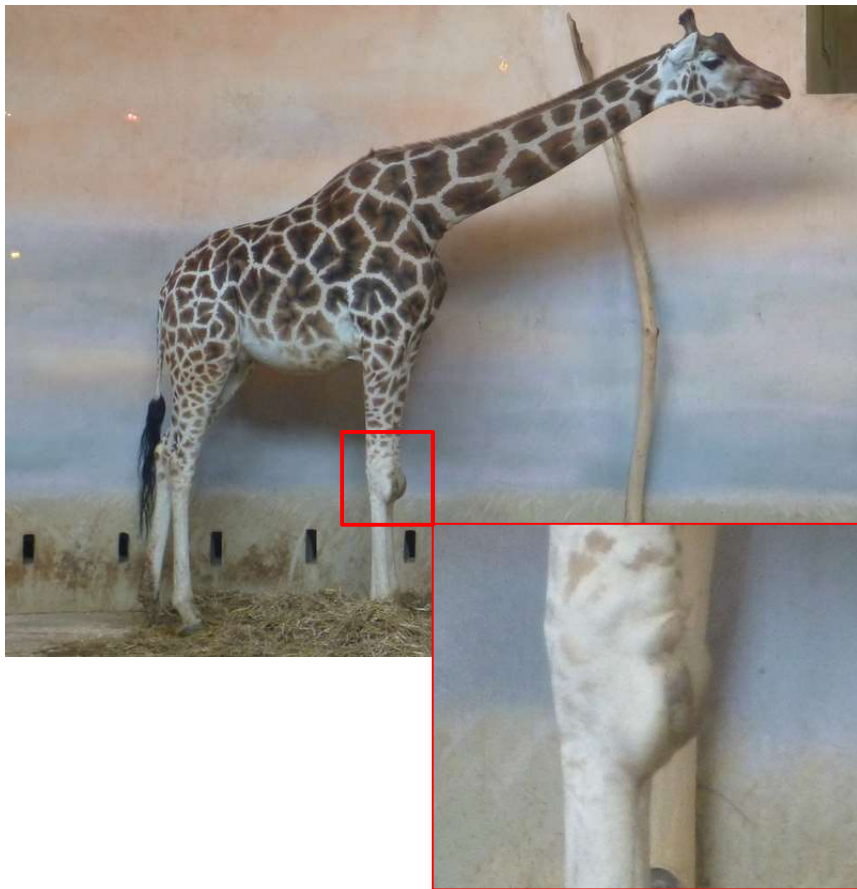


Identifikace žiraf



Kleopatra

- Velká kolena na předních končetinách, skvrna ve tvaru „rybí kostry“ na levém boku, dlouhý ocas, tmavá maska, křivé růžky





Identifikace antilop Derbyho

Záchranný program antilopy Derbyho

Identifikace antilop Derbyho

Záchranný program západního poddruhu antilopy Derbyho

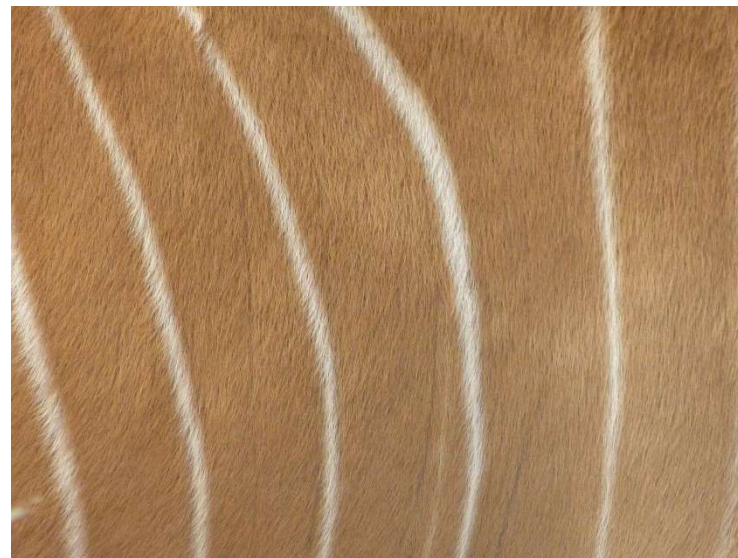
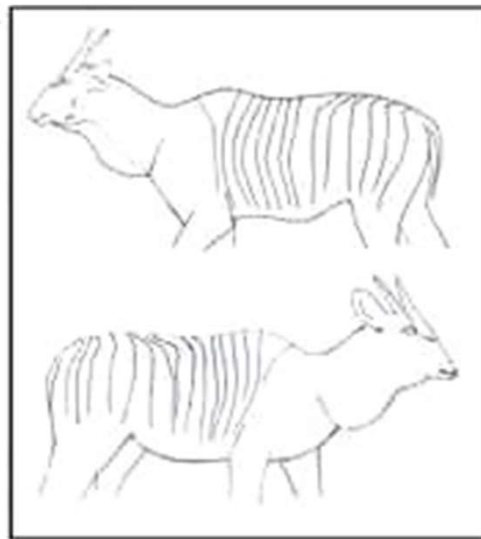
- ▶ *Taurotragus derbianus derbianus* – kriticky ohrožený



- ▶ 3 pilíře:
 - Řízení chovu
 - Výzkum
 - Vzdělávání

IDENTIFIKACE

Identifikace antilop Derbyho



Identifikace antilop Derbyho

Species: <i>T. d. derbianus</i>	ID: 1026
Name: Souleye	Species - fr: éland de Derby
Birthdate: 4.12.2005	Birthtype: captive
Sex: male	Birthplace: Bandia,Sn
Sir: Niokolo	Hybrid: not a hybrid
Dam: Salémata	Location: R. Bandia, Sn
N. of stripes: left/ right flank 14/13	
Other characteristics:	



Identifikace antilop Derbyho



Identifikace antilop Derbyho

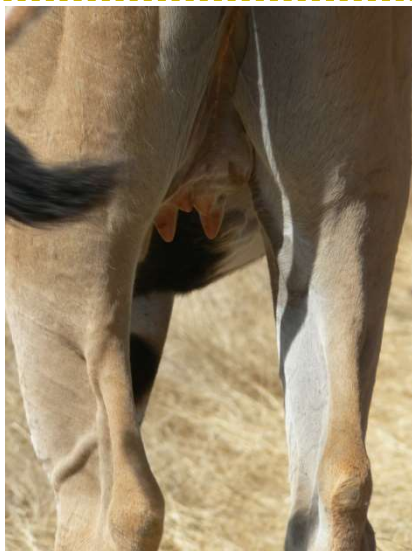
- Řízení chovu – imobilizace a převozy



Identifikace antilop

Derbyho

- Pohlaví
- Genitálie
- Rohy
- Lalok
- Velikost zvířete



Identifikace antilop Derbyho

- ▶ Rohy (tvar)
- ▶ Pruhy – počet, tvar ...
- ▶ Další znaky (jizvy ...)



Reference

- ▶ Anderson, C. J. R., Roth, J. D., & Waterman, J. M. (2007). Can whisker spot patterns be used to identify individual polar bears?. *Journal of zoology*, 273(4), 333-339.
- ▶ Bretagnolle, V., Thibault, J. C., & Dominici, J. M. (1994). Field identification of individual ospreys using head marking pattern. *The Journal of wildlife management*, 175-178.
- ▶ Heilbrun, R. D., Silvy, N. J., Tewes, M. E., & Peterson, M. J. (2003). Using automatically triggered cameras to individually identify bobcats. *Wildlife Society Bulletin*, 748-755.
- ▶ Scott, D. K. (1978). *Social behaviour of wintering bewicks swans* (Doctoral dissertation, University of Cambridge).
- ▶ Shorrocks, B., & Croft, D. P. (2009). Necks and networks: a preliminary study of population structure in the reticulated giraffe (*Giraffa camelopardalis reticulata* de Winston). *African journal of ecology*, 47(3), 374-381.
- ▶ Silvy, N. J., Lopez, R. R., & Peterson, M. J. (2005). Wildlife marking techniques. *Techniques for wildlife investigations and management*. Bethesda: The Wildlife Society, 339-363.
- ▶ Autoři fotografií: Karolína Brandlová, Tamara Fedorova, Markéta Gloneková, Kateřina Hozdecká, Tom Jůnek, Markéta Švejcarová, Magdalena Miřejovská (Žáčková)



A photograph showing six red-billed oxpeckers perched on the back of a zebra. The zebra's brown and white striped pattern is visible. The birds are small, with dark plumage and a distinctive red and yellow beak. They are arranged in a loose line across the zebra's back. The background is a blurred savanna landscape with dry grass and trees.

Děkuji za pozornost!

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