

Preparation Unit 1

Basics of Domestic Animal Biology

1 - Evolution, Domestication, Breeding

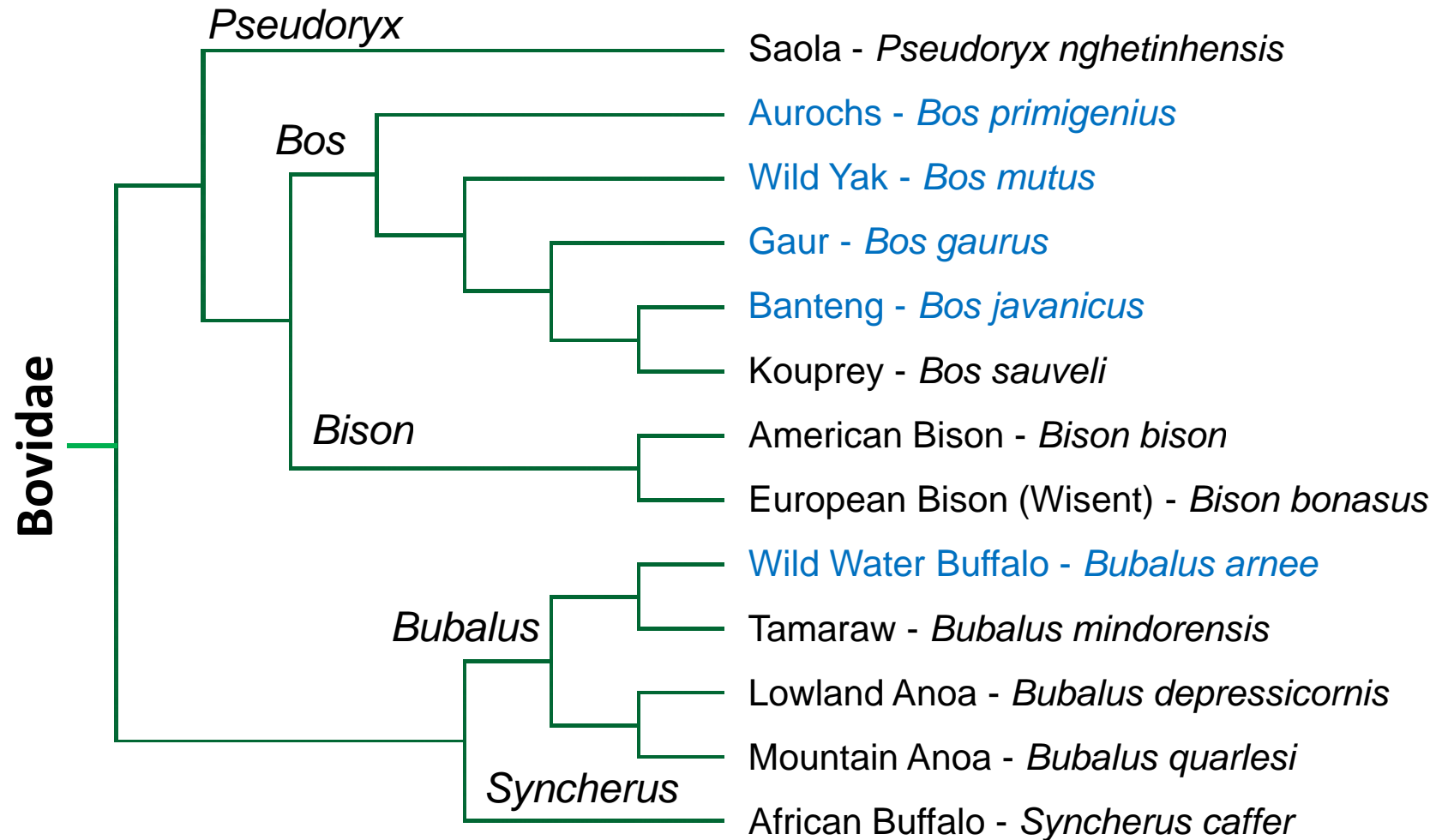
1 - 1 Picture Stream “Bovini”



Part 1: Wild Bovini



The *Bovini* family tree



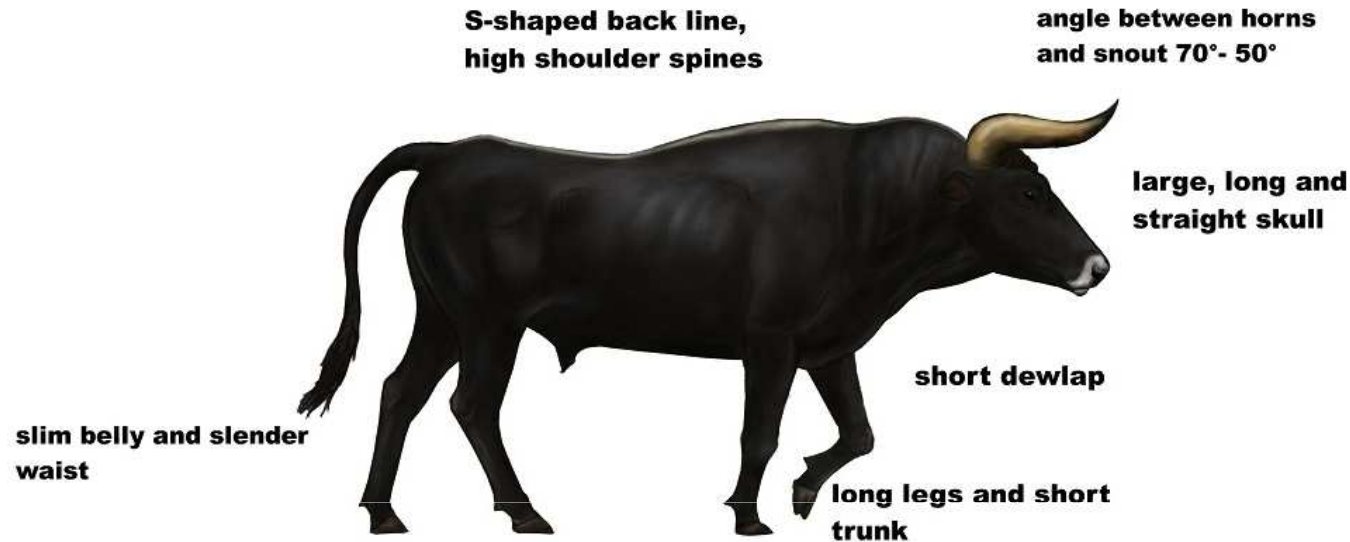
Pseudoryx nghetinhensis - Saola



The **Saola**, **Vu Quang ox** or **Asian biocorn**, also, infrequently, **Vu Quang bovid** (*Pseudoryx nghetinhensis*), is one of the world's rarest mammals, a forest-dwelling bovine found only in the Annamite Range of Vietnam and Laos. <http://en.wikipedia.org/wiki/Saola>



Bos primigenius - Aurochs, ancestor of domestic cattle



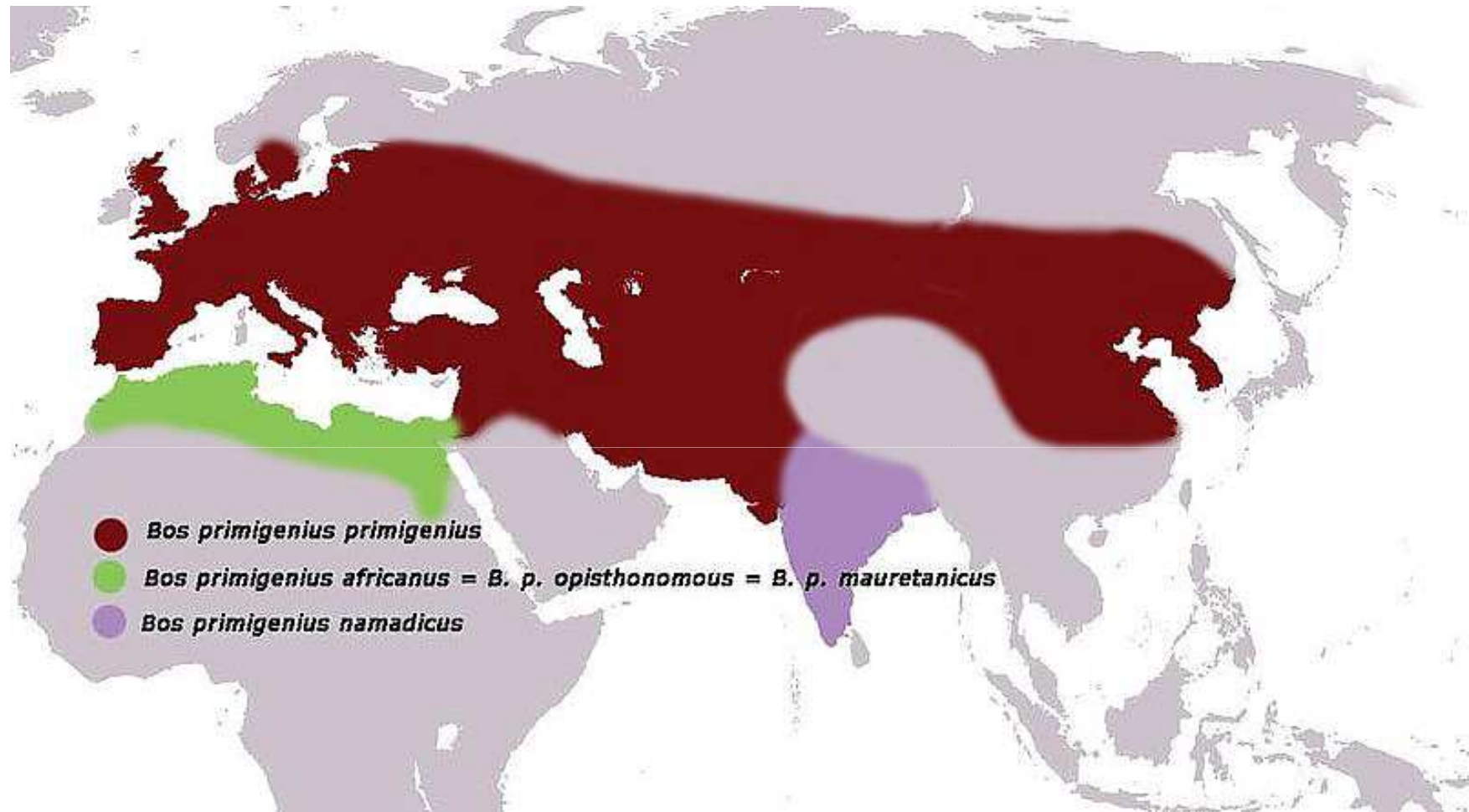
well-marked sexual dimorphism in size and colour



Bos primigenius - Aurochs, artist's impression



Range of *Bos primigenius*



Bos mutus – Wild Yak



Bos gaurus - Gaur



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Bos javanicus - Banteng



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Bos sauveli - Kouprey, artist's impression



Bison bison - American buffalo (Bison)



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Bison bonasus - European buffalo (Wisent)



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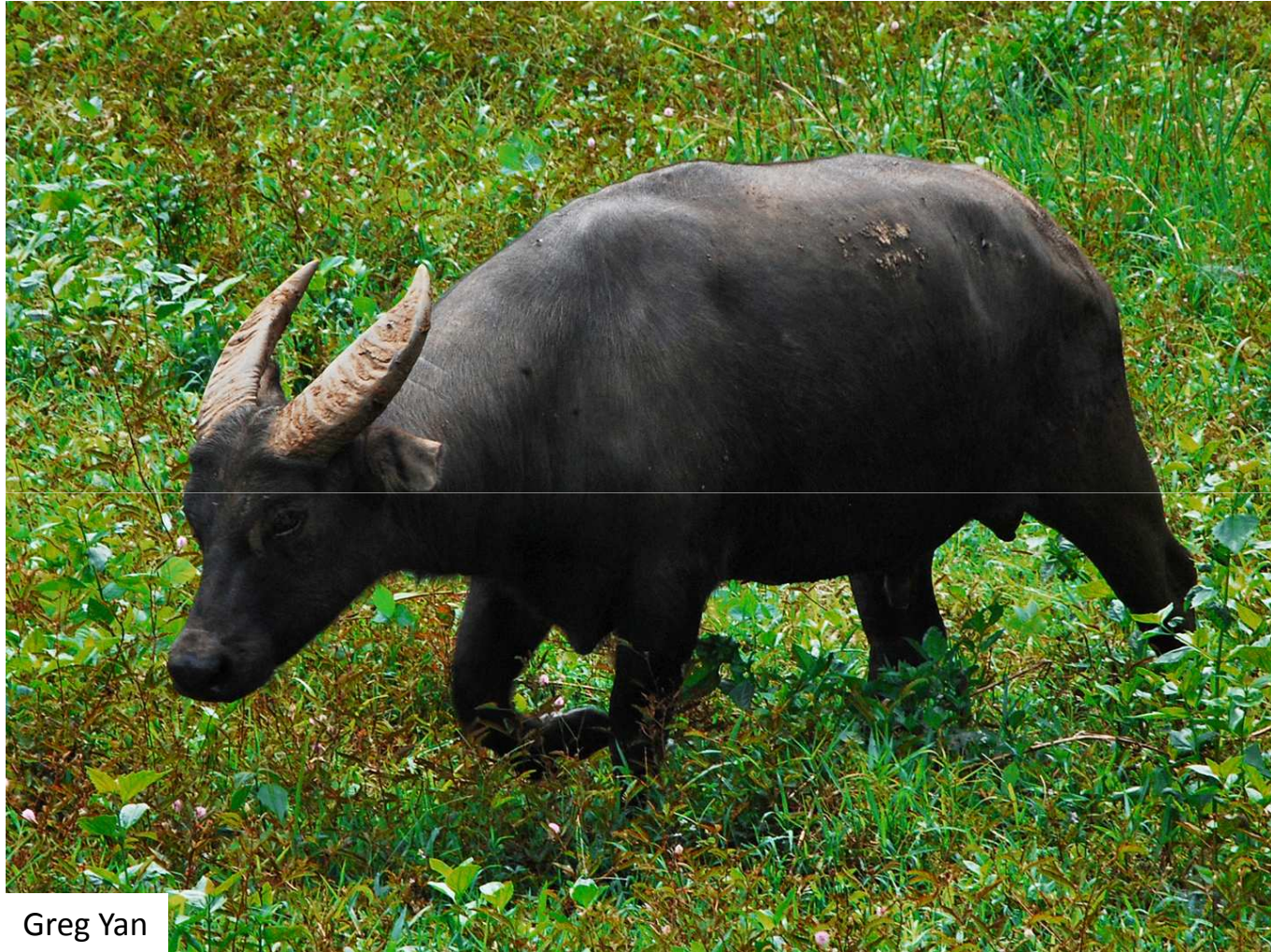
Bubalus arnee - Wild water buffalo



Raymond J. C. Cannon



Bubalus mindorensis - Tamaraw



Greg Yan



Bubalus depressicornis - Lowland Anoa



http://commons.wikimedia.org/wiki/File:Lowland_anoa.jpg#mediaviewer/Datei:Lowland_anoa.jpg



Bubalus quarlesi - Mountain Anoa



http://commons.wikimedia.org/wiki/File:Lowland_anoa.jpg#mediaviewer/Datei:Mountain_anoa.jpg



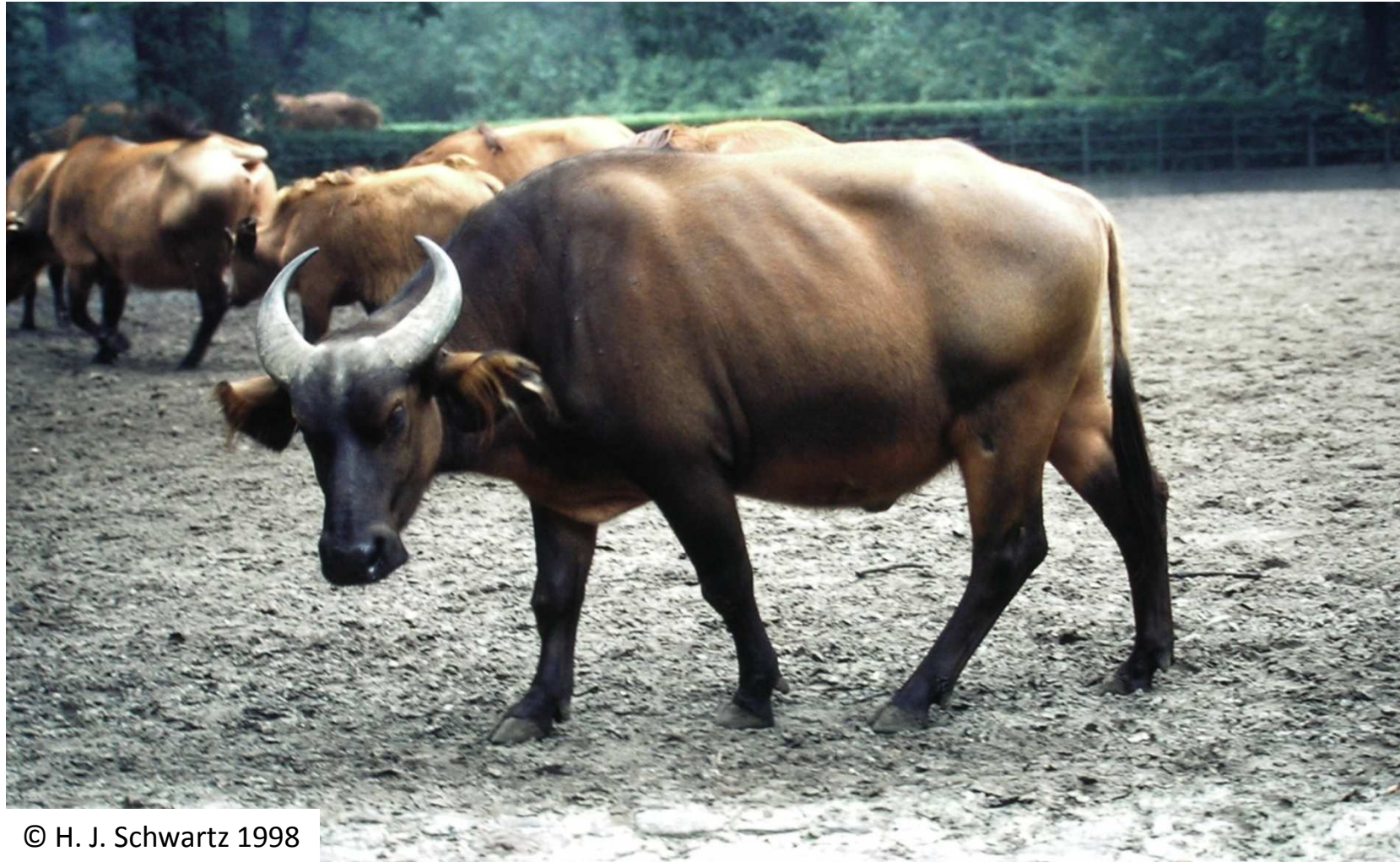
Syncerus caffer caffer - African Buffalo



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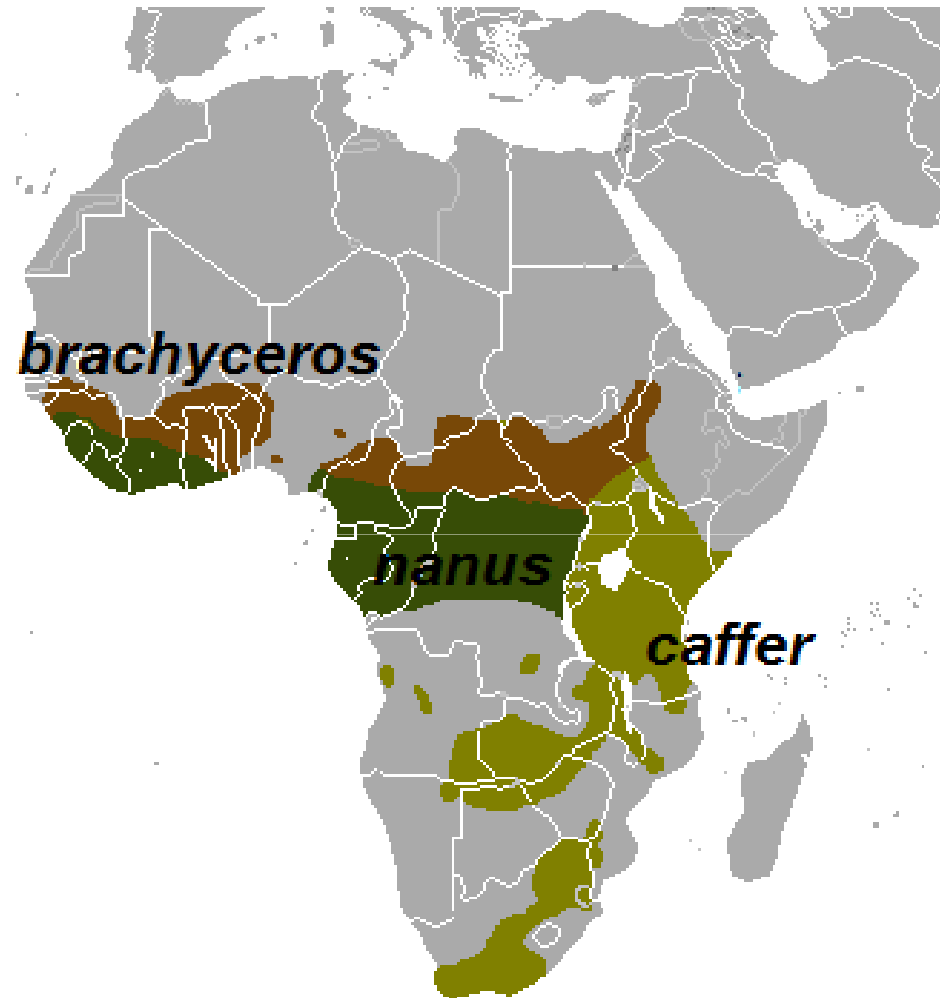
Syncerus caffer nanus - African Forest Buffalo



© H. J. Schwartz 1998



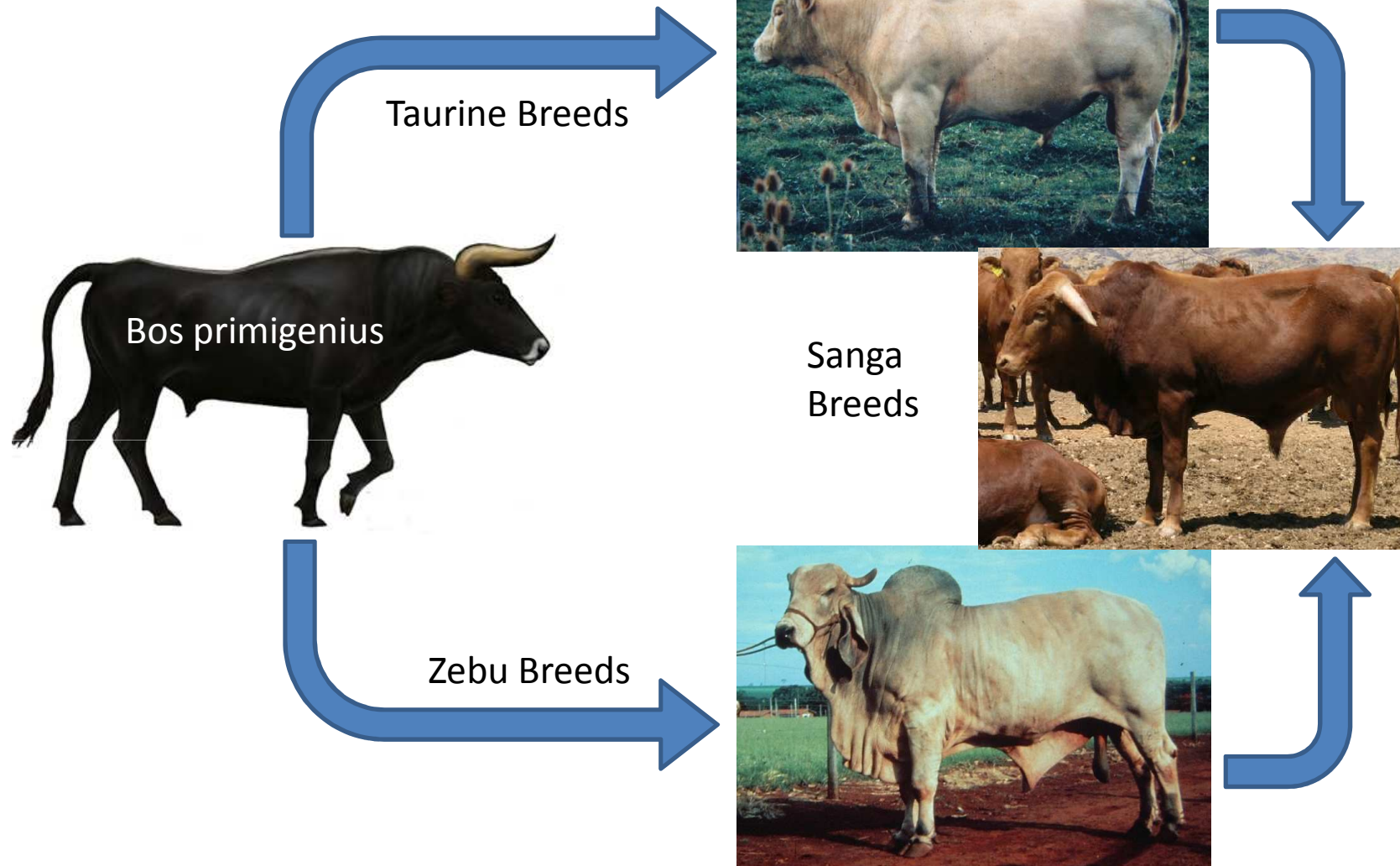
Range of the three subspecies of *Syncerus sp.*



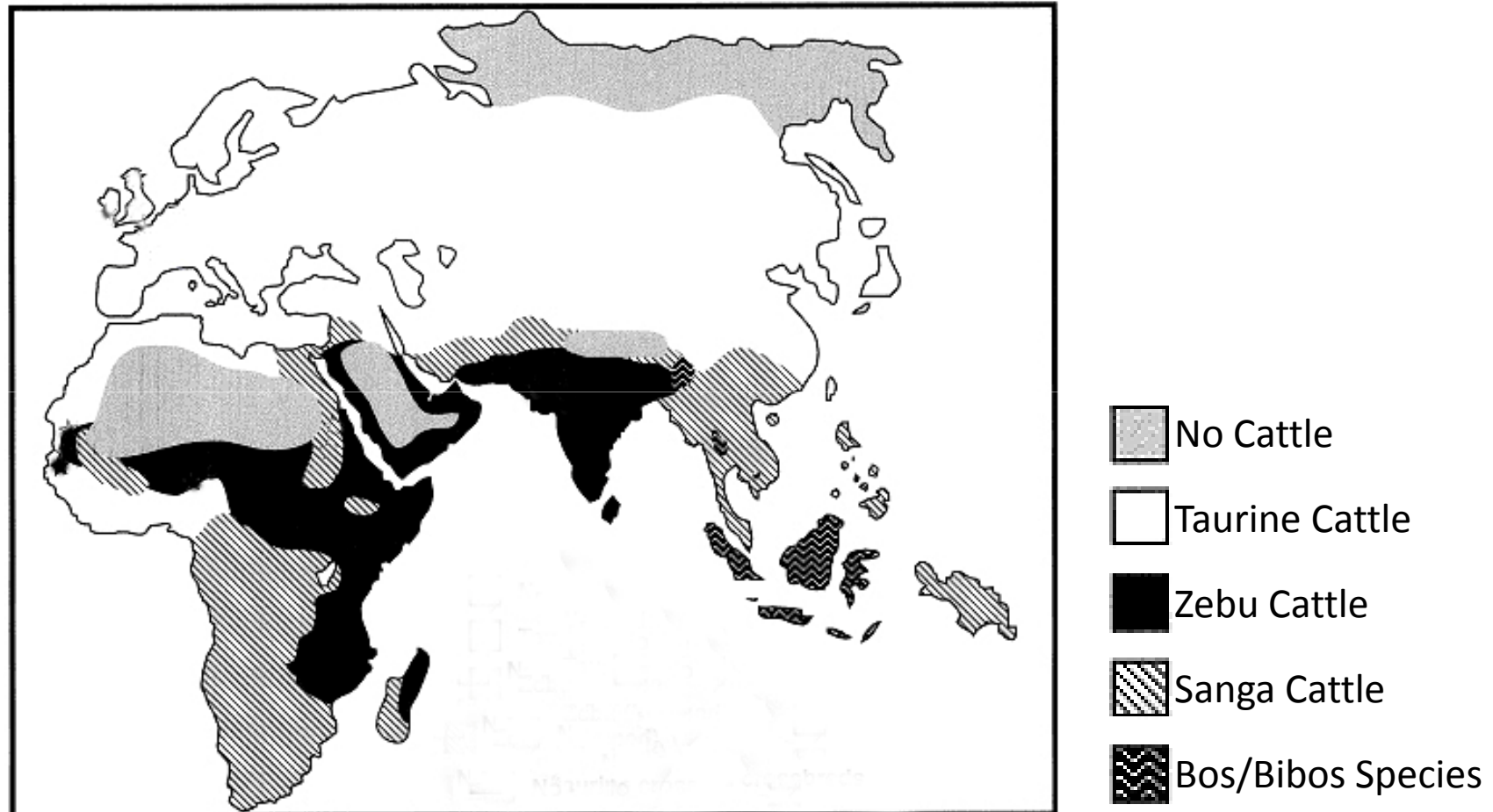
Part 2: Domestic Cattle



Main cattle breed groups



Distribution of cattle breed groups





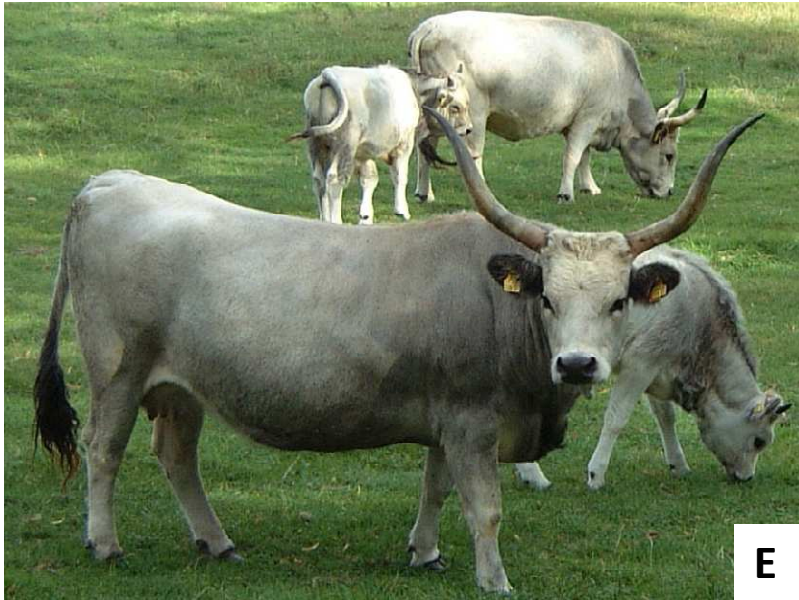
A B
C D



Examples for climate adapted cattle breeds

- A. Brahman (*Bos indicus*): Adapted to hot dry climates with inadequate feed supplies, insect pests, parasites and diseases. Originated from India. Now spread over most of the semi-arid tropics because of their superior performance in marginal environments.
- B. N'Dama (*Bos taurus*): Most representative *Bos taurus* breed in West Africa. Adapted to hot and humid climates and high parasite challenge, trypanotolerant. Small, late maturing breed with low growth rates and milk yields but superior survival rates and good fertility.
- C. Shorthorn (*Bos taurus*): Heavy breed adapted to low rainfall, mild temperate climates with a rich feed supply and little parasite and disease challenges. Split into two specialised lines, dairy shorthorn and beef shorthorn.
- D. Highland (*Bos taurus*): Medium sized breed of high rainfall, cool temperate climates. Adapted to high fibre forages, stress and disease resistant. Suitable for extensive beef production.





E F
G H



Old cattle breeds on the verge of extinction

- E. Hungarian Grey: Until the beginning of the 20th century, longhorned Gray Steppe cattle were the foremost beef and work breed in Hungary. Beginning about 1850 numbers decreased due to replacement by Simmental.
- F. Black Highland: The Highland breed originated in the remote Scottish Highlands. The extremely harsh conditions created through natural selection an extremely rugged breed. The smaller, black strain occurred mainly on the Western Isles but has been replaced by their larger red cousins.
- G. Murnau-Werdenfelser: Small, robust multi-purpose cattle in the German and Austrian Alps. Due to their relatively low performance they have been displaced by Simmental and Brown Swiss. Known population size is now less than 400.
- H. Old English Longhorn: The English Longhorn originated in northwest and central England and Ireland. They were used for meat production and work. After introduction of the Shorthorn breed it declined rapidly for nearly 200 years until it was rescued by the Rare Breeds Survival Trust in the 1980s.





I J
K L



Modern, high performing cattle breeds

- I. Charolais: A white breed of South-Central France known since the middle ages. Selected for size, muscle development and rapid growth they are now one of the highest performing beef breeds in Europe with excellent meat quality.
- J. Belgian Blue: A relatively new breed established through cross breeding of Shorthorn and Charolais and selected for extreme muscularity. Often used as terminal sire in crossbreeding programmes for higher beef yields.
- K. Black and White Lowland: Popular dairy breed, developed in Germany, Denmark and the Netherlands. Present herdbook averages are around 8500 litres of milk per year under intensive feeding conditions.
- L. Holstein: Developed in the USA from Black and White lowland stock for even higher milk yields. 12000 to 14000 litres/year are common. Exceptional individuals on very sophisticated rations may reach 20000.





M N
O P



Widely spread tropical cattle breeds

- M. Small East African Zebu: Widely spread in Eastern and South-Eastern Africa. Multi-purpose stock for small holder farms. Exist in many local varieties some of which appear to be trypanotolerant.
- N. Ankole (Sanga): One of the many longhorn types of Sanga cattle. Typical for nomadic herds in semi-arid Africa. Milk yields between 1000 and 2000 litres/year based on poor quality forages.
- O. Brahman Zebu: Large zebu originating from the Indian subcontinent. Due to it's high potential for milk, meat and draft power now spread all over the tropics and subtropics. Preferred partner in cross breeding programmes to increase performance of local cattle.
- P. Afrikander (Sanga): Consolidated cross between taurine and zebuine cattle already well established in South Africa before European colonisation. Resistant to heat and ticks, satisfactory levels of fertility and milk yields similar to those of Ankole. Still the most popular indigenous breed in South Africa.



Part 3: Other Domestic Bovines

Buffalo

Yak



Urban dairy production with Nili Ravi buffalo



Ploughing a rice field with Swamp buffalo





Carabao buffalo race



Domestic Yak, *Bos mutus grunniens*



Domestic Yak with riding saddle



Yak-Friesian cow cross



Literature

Oklahoma State University: Cattle Breeds <http://www.ansi.okstate.edu/breeds/cattle>

