



# DONKEY COLOUR GENETICS

Presentation by Helen Robertson



## 1. GRAY DUN

The commonest colour in donkeys of the world and the colour of their wild ancestors in the stony semi-deserts of north-east Africa.

EEAADD, E\_A\_D\_



## 2. Gray dun variant

A browner tone. Dun has two aspects. Firstly, the colour is diluted. The dilution is caused by the pigment, applied to the developing hair deep in the hair follicle, is only laid down on one side of the hair. Secondly, there are primitive markings. The main component is a dark dorsal stripe from top of head and down the dorsal midline of neck, back and tail, to the dark tuft at the end of the tail. The dorsal stripe is crossed at the wither by the shoulder cross, of variable length and width and elaboration. The ears have dark edges and tips and a dark area across the back of the base of the ear. There are commonly transverse stripes on the legs, and a dark spot on each side of the throat. The nostril rims and muzzle tip are dark. Some have a midline dark stripe on the belly. In gray duns all these primitive markings are black



### 3. Black (with light points)

This is essentially a donkey without dun, so there is no dilution and the primitive markings can't be seen. The black hair on nostril rims is there. There are degrees of dun dilution in donkeys, and this black has none at all. The light points (the pale near-white hair with black underlying skin on eye rings, muzzle, belly and inner upper legs) is called pangare.

E\_A\_dd



Brown (no dun)

4. Dark brown  
with no dun.

E\_A\_dd + brown



## 5. Brown dun.

E\_A\_D\_ + brown



## 6. Red, no dun.

As is normal in reds, he is developing roan. Reds normally have white legs due to roaning after a few years, and some roan rapidly. The dark mark on his lower hindquarter is very dark red.

ee\_\_dd



## 7. Red dun

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Legs beginning to roan.

ee\_\_D\_\_



## 8. Red roans, no dun.

The jenny, 15 years old, is nearly white. She will never be completely white. The foal showed considerable white hairs in her coat as a yearling. Roan in donkeys is unrelated to gray in horses and works quite differently.

ee \_\_ dd



## 9. Black roan, no dun.

This donkey is the roan phenotype born with a coat of mostly white hairs with a haze of colour on the body which develops into blurry reverse dapples over a few years. By the time they are in their teens they have the same sort of pattern as the old red jenny on the previous page, who was born all red. Dapple size can vary from donkey to donkey.

E\_ A\_ dd



## 10. Gray dun with roan.

This donkey has a light shade of gray dun and a phenotype of roan that progresses slowly, so that even over many years the dapples are only on the lower parts of hindquarters and shoulders. There is a fourth phenotype similar to this one but with a lot of coloured hair remaining on the lower legs, with inverted V of colour above the knee.

E\_A\_D\_



## 11. Dark brown or black roan, no dun.

Note reddish backs to ears. Donkeys that are black or dark brown, with light points, have reddish or yellowish tones around the head, especially on the junctions between light muzzle and eye rings and main dark body colour. This is similar to seal-brown in horses, the darkest bay.

E\_A\_dd



dark  
brown  
roan

12

Dark brown roan, no dun.



### 13. Dark brown roan, no dun.

The previous two donkeys looked like this as foals. Early roaning can be seen on this weanling's legs.



## 14. Gray dun roan.

This foal is a few days old. The roan is signalled by the pale hair (instead of dark) on the nostril rims.



## 15. Fully frosted spotted roan.

The donkey has both roan and donkey spotting. There is so much white in the coat that base colour is not clear though dark hairs can be seen on the rump. As a new-born, this donkey would have had patches of coloured hair with dark skin and patches of white hair with pink skin. The coloured areas rapidly roan to nearly or completely white. As red donkeys always roan, red spotted donkeys always roan out rapidly. This particular donkey shows the presence of spotting by the one white hoof.

E\_A\_Ss



## 16. Gray dun spotted.

Spotted donkeys are always heterozygous for the spotting gene. Minimal spotting can be a single white sock, or a broad blaze on the face, or a white forehead with colour spots in the white. At the other end of the scale, the donkey can be all white with pink skin, and just small pigmented areas near the eyes or the top of the shoulders. A simple white forehead star is unrelated to the spotting gene.

E\_A\_D\_Ss



*frosted spotted  
roan*

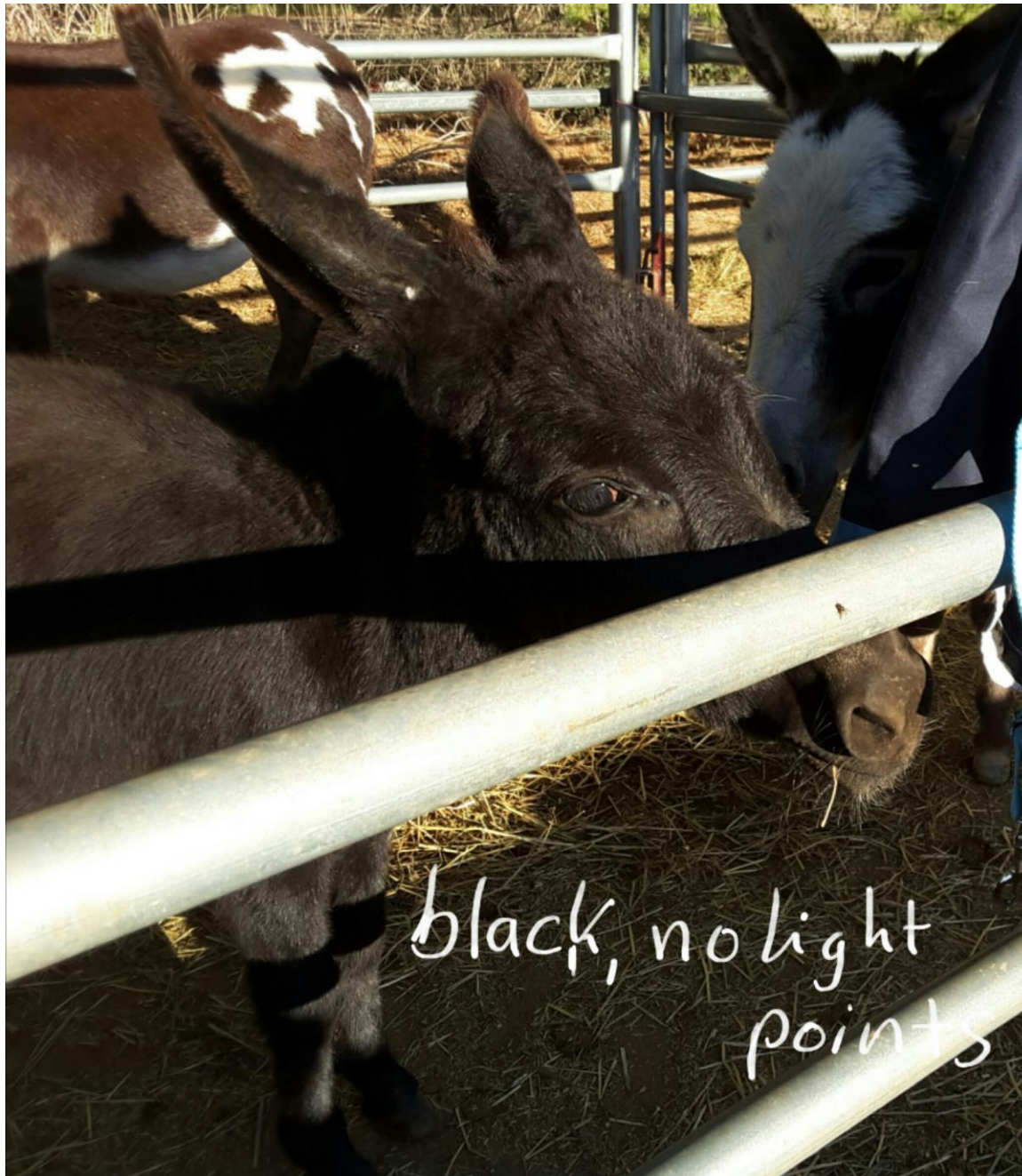
## 17. Frosted spotted.

Another spotted donkey, with some type of interacting roan.



## 18. Brown spotted, no dun.

The spots are in two tones. This is quite common.

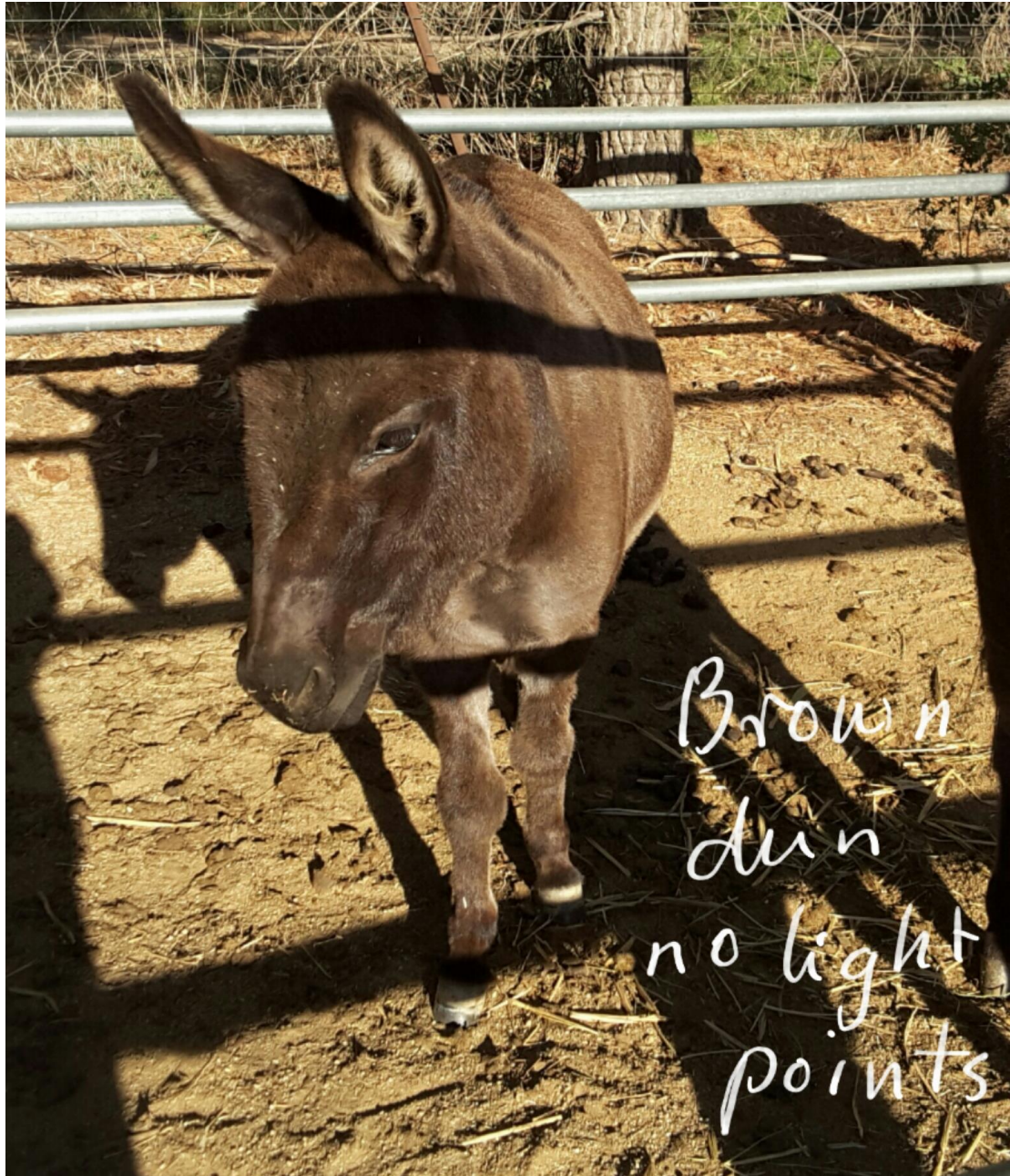


## 19. Black, no light points, no dun

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Black, NLP, are truly black donkeys. Face markings and belly are all black. No red or yellowish tonings.

E\_aa dd



## 20. Brown dun, no light points.

Brown colour, dun dilution, black muzzle and eye rings, and darkish belly. No reddish or yellowish areas. No pangare. Gray dun also comes in this NLP form, but red doesn't.

E\_aa D\_ + brown



## 21. Unknown dilution

Name of donkey 'Woodchip', a young jack, cream body and white legs ( also pangare and a white blaze on forehead), but no evidence of spotting, showing marked dilution of hair, skin and eye colour."

Ee\_\_ ss

Donkey owned by M. Teefy



## 22. Cameo dilution

Cameo, a cool toned mid-brown, showing moderate dilution of hair, skin and eyes, base colour unknown.

Both the first cameo donkey and Woodchip originated in Queensland."

Donkey owned by M. Thompson



THANK YOU FOR  
LISTENING!