



Genetics Wrap Up



How are Genetics used in Horses

- ▶ Genetics are used for everything in horses,
 - ▶ Breeding for speed and stamina in race horses
 - ▶ Cow sense in working and cutting horses
 - ▶ A particular gait for show horses
 - ▶ Coat colors for a flashier horse
 - ▶ Temperament for lesson horses
- ▶ Using genetics in domesticated horses is one thing, but how are genetics used in wild horses?



How are Genetics used in the Horses on Shackleford Banks?

- ▶ On Shackleford Banks DNA is acquired through samples of feces
- ▶ The DNA is used to establish Maternal Lines and Possible Sires
- ▶ You may be thinking “Well that’s cool to know, but WHY do you need to know it?”



Here's why.

- ▶ On Shackleford, the population range is ideally between 120 and 130 horses.
- ▶ If nothing was done, what do you think would happen to the number of horses over time?
- ▶ Contraceptives (birth control) are given to a few mares every year so they don't have a foal.
- ▶ The genetic information is used to choose which mares get the contraceptive and which ones may foal



Here's an example:

- ▶ It is time to give contraception to the horses. There are currently 110 horses on the island. There are 50 mares. Of these mares 20 are too old or too young to have a foal. Of the remaining 30, 15 need to be given contraception. How does the NPS decide which 15 receive the contraception?
- ▶ They use the DNA collected to look at the maternal lines on the island. After doing that they see that 10 mares have a well represented maternal line, so these horses will receive contraception
 - ▶ A well represented line is one that has many members on the island
- ▶ Then they look at the Pedigree of the remaining 20 horses and see if any have had a foal before. Of the 20 horses 5 had foals last year, so they give contraception to those 5 as well.