



~ COLORFUL ~

THE ORIGINS OF MORGAN COLORS

*An authoritative guide to understanding the genetics—and the names in pedigrees—
behind the resurgence of colorful Morgan horses.*

By Laura Hornick Behning

The topic of color in the Morgan breed has been a subject of much debate over the years. The White Rule, which was in effect from 1962 to 1995, disallowed registration of any Morgan with blue eyes or white above the knees and hocks, as well as extensive white on the face. Since the White Rule was rescinded, there has been a resurgence of colorful Morgans and a resulting popularity with owners who appreciate their unique characteristics. Our understanding of color genetics grows every year, with DNA testing now available for many of the colors found in horses.

There is a lingering misconception that color is a recent introduction to the Morgan. In actuality, colorful Morgans existed at the breed's very beginnings. The buckskin grandson of Justin

Morgan, Buckskin #41 (Wheeler Horse), is often cited as one of the earliest examples of color in our registry. I decided to look through the *American Morgan Horse Register*, Volume I, and see what other examples of colorful Morgans I might discover.

Volume I was compiled by Joseph Battell in 1894 using old records, letters, and D. C. Linsley's 1857 treatise, *Morgan Horses, a Premium Essay*, as the basis for his work. There are approximately one thousand horses in this volume. I was amazed to find at least 86 of them were listed as gray (my numbers may not be exact, but close) and 15 listed as roan. Some of the roans had a gray parent, so they may actually have been gray instead as young grays are often mistaken for roan. In light of these numbers, it is surprising that more gray lines did not survive to the present day. Highland Gray

ABOVE: Coral Forest (palomino), Positively Charmed (smoky black silver), and Kennebec Topaz (buckskin) at the author's farm in Georgia (photo by Laura Behning).

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HISTORICAL COLORFULS

LEFT: Highland Gray (Darkey x Betsy by Weston's Grey Hawk, grandson of Bulrush Morgan), AMHA #94. Foaled in 1867 and registered in Registry Volume I, Highland Gray was an excellent example of the early colorful Morgan; **RIGHT:** Young Gifford, also known as Carrier Horse and General Gifford 3rd (Gifford Morgan x mare by Cock Of The Rock by Sherman Morgan), AMHA #367. Chestnut with a silver mane and tail and flashy white. The shape of the large blaze is particularly suggestive of the presence of the splash gene (photos from Registry Volume I).

#94 (Darkey x Betsey by Weston's Gray Hawk), foaled in 1867, is pictured in this volume.

Also pictured in Volume I is the interestingly-marked Young Gifford (AMHA registered as Carrier Horse #367). The shape of his large blaze, which extends past the eyes, as well as the three white feet is very typical of a heterozygous splash pinto. In addition to all the white, he has a silver mane and tail, which could indicate either flaxen or the silver dilution. There were quite a few Morgans listed as having a "light mane and tail," "flaxen mane and tail," or "silver mane and tail." I stopped counting at 17. Chestnuts with a lighter mane and tail were particularly common in horses of Daniel Lambert breeding, which holds true today in his descendants from the horses bred at the Hanley's Quietude Stud.

I did not expect to find duns in Volume I but was excited to find at least three. Blue Morgan (aka Wilson Horse, Crane Horse) #723 was by Royal Morgan (by Sherman Morgan) and out of a "buckskin or mouse colored" trotting-bred mare. He is listed in the Registry online as a chestnut but that is incorrect; Registry Volume I describes him as "mouse colored with black stripe down back and down the shoulders" which is a good description of a grulla (dun on a black base color). His owner, Chauncey Wilson, wrote that many of Blue Morgan's offspring were the same color as him, including Blue Ned #724. Another early dun was the mare Helen Gray #01015 (Herod x Unknown Mare [buckskin]), described as "mouse color" in Volume I but "chestnut" in the online Registry. It is likely Helen Gray's dam was a bay dun or dunskin as the Herod line is not known to have any dilution genes. Bay duns are often mistaken for buckskin, or a horse can have both the dun and cream dilutions on a bay base, known today as "dunskin."

The color line from the well-known Buckskin (Wheeler

Horse) may well have survived to the present day via a line of misregistered smoky blacks or dark buckskins descended from his great grandson Meteor #3840. An unregistered daughter of Buckskin known as the George Thorpe Mare produced Meteor's dam, the P Reagan mare. Meteor was registered as brown but may have actually been smoky black or dark buckskin, and he may be the source of the cream dilution via his son Meteor Jr. and from there on to Meteor Jr.'s grandson, Imperial. Imperial is one possible source of color for the Cross Ranch cream dilutes Ketchum (who is the sire of the smoky cream stallion Chingadero) and Buck (dam of Yellow Girl who produced Chingadero's dam, Haager, as well as Tia, behind the Goldtree-prefixed colorfules as well as one of our extant silver dilute lines). The darker buckskins tend to run in families and are easily mistaken for brown or bay; the same is true of darker palominos that can appear chestnut. Smoky blacks (black horses carrying cream) are also often mistaken for chestnut or brown. In this way it is likely that many cream dilutes bred on undetected through many generations. The Registry Volume I, from which I am citing these statistics, is available online for all to peruse via Google Books (*see end of article for link*), and I suggest everyone take a look through it for themselves. It certainly makes for some interesting reading!

In most cases the sources of color in our modern Morgan can only be traced back so far. This may be because the color came from X-registered mares whose parentage was only partially known, but also because color descriptions of the time were not always accurate, in the ways genetic testing verifies today. This makes it more difficult to pinpoint exactly which horses are responsible for the color gene(s) behind some of our breed's ancestral colorfules, but there is still quite a bit we do know.

COLORFUL ≈ THE ORIGINS OF MORGAN COLORS



CREAM DILUTION SOURCES

1. Night Tide (Tiffany x Glenalla), 1934 black (probably smoky black) stallion. Night Tide is the sire of the four L.U. Ranch cream dilute mares that have colorful descendants today. 2. Carmel Snow (Night Tide x Kaycee), foaled in 1939, who went on to be an excellent producer for the Pineland breeding program in Georgia; MODERN DAY DESCENDANT: SFG Aikanes Flying Change (Windflower Tatertot x Palisade Gypsy Rose) (4), 2001 cremello stallion owned by Pam Morgan, CAUM Morgans. 3. Dawnglo (Night Tide x Ishawooa), also foaled in 1939, whose colorful descendants include Tio Lalo (5) and Californio (6); MODERN DAY DESCENDANTS: Fantastical (RG Black Dandy x Coral Forest) (7), 2015 buckskin mare owned by Sara Amerman and her 2023 buckskin colt Fantabulous by KS Bluestem The Old Guard. 8. Luellen (Night Tide x Ethete), 1939 smoky black mare whose offspring included Betty Gold (dam of several from Stanley Walker's breeding program) and Morgan Gold, whose numerous descendants include Morgans from the Triple S, Nashboro, and Oak Acres breeding programs, as well as Adiel's Casino Gold descendants; MODERN DAY DESCENDANTS: JAX Killian Gold (Magenta's Mad Moonshine x R Heart Tickle My Fancy) (9), 2016 palomino gelding owned by Lori Sargeant, and Littlewood Inside Strait (Season's Pure Country x WillowRun Hayli) (10), 2008 buckskin gelding owned by Amie and Darren Taber, ridden by 17-year-old Megan Taber. There are no known photographs of the 1939 buckskin mare Luxury (Night Tide x Mallow), but the highly touted Reined Cow Horse palomino stallion Westwind Otto (Sweet's Baybarry x Westwind Eyelash) (11) and the 2022 Hunter Pleasure Ladies World Champion, the buckskin Don't You Wish (MLB Capo Di' Capo GCH x Simple Elegance) (12), are excellent modern-day examples of this color line (photos © Johnny Johnson, Laura Behning, Free Rein Photography, Kyra Germann of Rockin' Horse Photography, Howard Schatzberg).

CREAM DILUTION SOURCES

When most people think of a colorful Morgan, the cream dilutes—especially palominos and buckskins—are what usually come to mind, and indeed they are probably the most numerous of the colorful Morgans. Palominos result when a chestnut horse inherits one cream gene. The red hair on a palomino is diluted, usually to some shade of gold, with a white mane and tail. However, palominos can range in shade from nearly white to a very dark,

sooty brown shade, often with heavy dappling. Sometimes these very dark palominos are mistaken for flaxen liver chestnuts or silver dilutes. On very dark palominos, silvery gray hairs may appear in the mane and tail. All palominos have at least one cream dilute parent.

Buckskin is the result of one cream gene on a bay or brown horse. The cream gene, in its heterozygous state, only affects red hair, so the black hair on a horse with one cream gene is left

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OTHER CREAM DILUTION SOURCES

Unfortunately there are no known photographs of the Cross Ranch smoky black stallion Ketchum or the buckskin mare Buck. Here is a picture of Buck's 1942 palomino daughter Yellow Girl (Glider x Buck) (1), with owner Dr. Loran Coppoc and her 17th and final foal, Lakeview Red Button. Yellow Girl produced 17 foals in her lifetime, including colorful contributors Haager (dam of Chingadero (2), the famous smoky cream stallion, who was sired by Ketchum) and the palomino mare Tia (behind the Goldtree colorfules as well as the palomino overo mares Sky Walker AB and L A S Future de Oro); MODERN DAY DESCENDANT: Little Oaks Custom Chrome GCH (Amberfields Desperado x Little Oak's First Lady) (3), 2008 palomino gelding, with Emily Philbrook up. 4. Golden Jubilee (Jubilee King x Gold Bug by Redolent), 1939 palomino stallion, sire of Gwenie, whose color line is strong in Morgans from her grandson Jan Mabie Pace; MODERN DAY DESCENDANT: KTM Buttercup (KTM Tequila Rio x Ismarel) (5), 2013 buckskin mare owned by Sunrise Ranch. 6. Cotton Hill Daisy (Amigo Mick x Daisette), 1949 palomino (registered as chestnut) mare, shown here with her 1962 colt Joe Boyer. Cotton Hill Daisy is the color source behind Sunup Neptune (7); MODERN DAY DESCENDANT: Satin's Shelly (Sunup Neptune x Black Satin Beauty (8), 1998 buckskin mare owned by Kathleen and John Cabot, shown working with an Alzheimer's patient at Fairview Senior Living's equine therapy program at Strongwater Farm Therapeutic Equestrian Center in Tewksbury, Massachusetts (photos Adrienne Dymesich, Fairview Senior Living).

undiluted. Buckskins can vary in shade from very pale buttermilk through a very sooty, dark brown color. Buckskins with the sooty modifier (which causes darker shading starting along the topline of the horse) often have heavy dappling and a dorsal stripe. Buckskins can be mistaken for bays if they are more red than gold; for duns if they have a dorsal stripe; or for seal browns if they are very dark. Buckskins will have at least one cream dilute parent.

Smoky black is the result of one cream dilution gene on a black horse. Because one cream gene (heterozygous) does not affect black hair, there is not much effect when it is present on a black horse. However, smoky blacks can be some very odd shades, especially when in weathered or sun-faded coat, and as a result are often mistaken for liver chestnut, brown, grulla, or dun. Historically, this has caused many smoky blacks to be registered as one of those colors (or as simply "black," which does not accurately reflect the presence of the cream gene). All smoky blacks will have at least one cream dilute parent.

Two cream dilution genes (homozygous cream) have a "double dilute" effect on both red *and* black hair on the horse's body and

points. These horses are nearly white in color, though they may retain a golden cast, often with dapples. A bay or brown horse with two cream genes becomes a perlino; a chestnut horse a cremello; and a black a smoky cream. Homozygous cream dilutes all have pink skin and blue or bluish green eyes. Their skin may freckle in the sun. Every offspring of a homozygous cream dilute will be cream dilutes of some type.

All cream dilutes in the Morgan breed originate from four sources: the L. U. Sheep Ranch, the Cross Ranch, the mare Gwenie, and the mare Cotton Hill Daisy. The colorful lines from the L. U. Sheep Ranch trace to four mares: Dawnglo (Night Tide x Ishawooa), a 1939 palomino mare whose color comes down to us via Californio, San Willidust, and Tio Lalo descendants; Carmel Snow (Night Tide x Kaycee), a 1939 palomino mare whose lines continue through horses of Pineland descent; Luxury (Night Tide x Mallow), a 1939 buckskin mare (registered as dun) who is found in the Aquila's-prefixed colorfules, Dickie's Pride, Desert Sands, and Yellow Bird descendants; and Luellen (Night Tide x Ethete), another 1939 model, a smoky black mare whose color line

COLORFUL ≈ THE ORIGINS OF MORGAN COLORS



SILVER DILUTE SOURCES

1. Topside Jolly Roger (Kings-Haven Senator [bay] x Yampa Sue), a 1966 chestnut stallion who is the fountainhead of the largest silver family known in the Morgan breed at present. Jolly Roger was a red chestnut, but it is evident from his offspring that he carried the silver gene. Jolly Roger's color line comes through his dam, Yampa Sue (registered as chestnut, and also said to be red chestnut by eyewitnesses), whose registered-as-chestnut dam Oughtchoo (Raymond S Sentney x Mae Morgan) goes back to the mare Dan's Bess (by Dan) in an unbroken line of "chestnuts" on both sides of her pedigree; MODERN DAY DESCENDANT: the late Stone Pine Logan (PL Chosen For Glory x Lone Pine Starlite) (2), 2008 bay silver dapple stallion, shown with Sean Sowa up.
3. Crimson Jack (Cloverlane Andrew x Donnie's Lass), 1975 chestnut (carrying silver) stallion. Sired seven, including Taha Holly Q, the dam of Amanda's Suzie Q (photos courtesy of Marilyn Esteb and Barbara Fogel).

continues via descendants of Morgan Gold, Nugget Hanneman, and Rusty Walker. The cream dilution on each of these mares is probably coming from their sire, the Brunk/Government-bred Night Tide (Tiffany x Glenalla), but where it comes from prior to that is a mystery. Photos of Mallow (Luxury's dam) and Ethete (Luellen's dam) do not appear to show cream dilute individuals. I have not seen pictures of Kaycee (Carmel Snow's dam) or Ishawooa (Dawnglo's dam). However, none of them produced colorfules except when bred to Night Tide. As an aside, Mallow is the great grandam of Starfire, sire of Waseeka's Nocturne, so her blood is well dispersed in the modern-day Morgan.

The contribution of the Cross Ranch to our colorful population is significant. The 1950 smoky black stallion Ketchum (Joe Lewis x Du Noir Strip [X-registered, out of unknown mare]) is the sire of the smoky cream stallion Chingadero, who has numerous descendants today. The other Cross Ranch color source was the 1930 buckskin mare Buck (Imperial x Nellie [X-registered]), whose color line carried on through the many descendants of her daughters, Yellow Girl and Smokie. The cream dilution in both Ketchum and Buck may come from their X-registered dams or through Imperial via a long line of darker cream dilutes, most likely smoky blacks, tracing to Buckskin (Wheeler Horse).

Bred by O. J. Neeley in Idaho, the 1951 palomino mare Gwenie (out of Gwenalan) got her cream dilution from her palomino sire, Golden Jubilee. He was sired by Jubilee King and out of the X-registered mare Gold Bug (Redolent x unknown mare). Gwenie's color line comes down to us through horses of the Jan Mabie Pace lines. Many of today's gaited colorful Morgans trace to Gwenie.

The final source of the cream dilution in today's colorful Morgans comes to us via the Brunk-bred 1949 palomino mare Cotton Hill Daisy (Amigo Mick x Daisette). The source of Cotton Hill Daisy's cream gene may have come from her paternal grandam Madonna, a black daughter of Go Hawk (black, with no apparent cream dilute lines) and Red Ruby (who may have been some sort of darker cream dilute but was mistakenly registered as chestnut.

Her dam, Ruby, is also the maternal great grandam of Night Tide). Cotton Hill Daisy's color line is represented by horses from Sunup Neptune lines.

SILVER DILUTION SOURCES

Silver (sometimes called silver dapple; in the Rocky Mountain breed it is called "chocolate" and in Australia "taffy") is a dilution gene that only affects black hair. It is not visible on chestnuts, since they do not have black hair to be diluted by the gene, but silver can be passed on by those chestnuts who inherit the gene from a parent. The silver gene dilutes any black hair on the horse to shades of chocolate through slate gray, sometimes with dappling, and has an added lightening effect on the mane and tail, turning them silvery gray, straw-colored, or even platinum. In some lines of silver, and in some silvers as they age, the contrast between body color and mane and tail can become muted and less noticeable. Because silver is a dominant gene, all silvers will have at least one silver (or a chestnut that is carrying the silver gene) parent.

Silver is the rarest of the three dilutions found in Morgans, with less than 200 alive at present. In the past, most silvers were registered as, and thought to be, chestnut. Since chestnut bred to chestnut always results in another chestnut, this caused some confusion when a "chestnut" (who was actually silver) was bred to another chestnut and a black, bay, or brown was the result. This has, however, made it easier to track the gene's source, as the production records of mistakenly-registered-silver Morgans are full of these examples.

At this time there is only one known source of the silver gene in Morgans: Dan, a chestnut (carrying silver dapple) foaled in 1916, a son of the great Headlight Morgan. While there are many descendants of Dan who did not inherit his silver gene, two lines from him are known to be silver. They come from the 1966 chestnut (carrying silver) stallion Topside Jolly Roger and the 1975 chestnut (carrying silver) stallion Crimson Jack. The most prolific line comes through the Topside Jolly Roger son Pegasus Persuader

COLORFUL ≈ THE ORIGINS OF MORGAN COLORS



DUN SOURCES

1. Pendleton Buck Missy (King Richard x Cute), 1964 smoky grulla (dun plus cream on a black base) mare (registered as buckskin), the only source of dun in the breed; MODERN DAY DESCENDANT: Tocara's Double Dose (Lineback Double Take x Coachman's Tsunami) (2), 2015 dun stallion owned by Natalie Tanaka, shown by Jacque White.

via his daughter Foxtan Felicia and her daughters Foxtan Fawn and Foxtan Smokey Dawn. The rarer Crimson Jack line is represented by his daughter Taha Holly Q and her daughters Amanda's Suzie Q and Spihos Grace.

DUN SOURCE: THE CUTE CONUNDRUM

Dun is a dilution gene that lightens both red and black hair on the horse's body. It is also associated with primitive markings, which generally include a dorsal stripe and leg barring, and may also consist of dun-colored frosting on the sides of the mane and at the tailhead, dorsal barbs, a "cobwebbing" pattern on the forehead, white ear tips and barring on the ears, and a facial mask of darker hair. Because dun is a dominant gene, all dun horses have at least one dun parent.

Dun on a black base is called grulla or black dun. Grulla horses are very striking, with a silvery gray body color, black points, mane and tail frosting, and primitive markings. When bays or browns are diluted by the dun gene they become a bay or brown dun, sometimes called a zebra dun. They range in color from red-gold to cream on the body with black points and primitive markings. Chestnuts with the dun gene are called red duns. Dun in combination with one cream gene creates dunalino (dun plus palomino), dunskin (dun plus buckskin), or smoky grulla (dun plus smoky black). Like all colors, there is a range of shade in the dun colors, from so dark as to look almost non-dilute to very pale.

Occasionally, non-dun horses have a dorsal stripe and even faint leg barring. In 2015, a genetic cause was found for these primitive markings. This information—reported as "nd1" for non-dun 1—is now included in the genetic test for dun.

All modern-day dun Morgans come from one line through the 1964 smoky grulla (black with both a dun and cream dilution gene)

mare Pendleton Buck Missy via her daughters Robbi-Sue Misalert (by Robbi Sue Moralert) and Robbi-Sue's Dun Ella (by Applevale Monarch). The source of Missy's dun gene is unknown. Her dam, Cute, appears to be a smoky black in pictures, and her breeding (by Ketchum, a smoky black who was also the sire of Chingadero, and out of Smokie Brown, who may also have been some sort of cream dilute, given her breeding) supports this. Missy's sire is given as the chestnut stallion King Richard.

Cute produced two other colorfules besides Pendleton Buck Missy (who was registered buckskin but shown in color photographs to be a grulla; we know she also carried a cream gene as she produced cream dilutes). These were the palomino stallion Amber Chief (by Chief Justin Morgan), foaled in 1958, and the 1968 palomino gelding Pendleton Joe (by Orcland Bo Don). Neither Chief Justin Morgan (bay) nor Orcland Bo Don (black) were colorfules, nor did they have colorfules in their pedigrees. This proves that Cute was not just black, but a smoky black, and passed on her cream gene in at least three instances (Pendleton Buck Missy, Amber Chief, and Pendleton Joe). So where did Missy's *dun* gene come from?

Missy's recorded sire, King Richard (Agazizz x Carmalita Knox), was a chestnut horse of old Brunk, Jubilee King, and Working Western family lines. None of the horses in his immediate ancestry were dilutes of any type. He sired 23 offspring and Missy was the only dilute. His picture, even in black and white, does not appear to show a dun dilute, so it is fairly certain that he was not a misregistered dun. It is possible that Cute was a very dark grulla as well as a smoky black. However, her color pictures seem to belie that possibility, as she looks, essentially, black with a bit of sun bleaching in her mane. If Cute was a dark grulla, we are right back to the same question: where did her dun gene come from? There is

COLORFUL ≈ THE ORIGINS OF MORGAN COLORS



GRAY SOURCES

1. Hy Crest Satina (Hy Crest Koko x Lady Satin), 1969 gray mare with her 1990 gray colt CW's Sterling Silver. This mare is the color source for the majority of today's gray Morgans; MODERN DAY DESCENDANT: Winter Moon White Magic (JMF Kool Cruise x Winter Moon Light Kiss) (2), 2012 gray gelding owned and shown by Jodi Hadley (photo © Howard Schatzberg). 3. Silver Princess (Mountain Silver Sheik x Daisette), 1942 gray mare. She had two offspring, one of whom was the gray mare Frosty Princess, dam of the gray mare Frosty's Blue Bonnet, who was in turn dam of the gray mare Saycrest Frosty Miss.

color behind Cute. However, it is all the cream dilution, not the dun dilution. Her sire, Ketchum, was also the sire of the famous smoky cream stallion Chingadero. Ketchum was registered chestnut but was actually a smoky black. Many smoky blacks indeed appear dark liver chestnut, especially when sun bleached. Ketchum's owner, Ab Cross, called him "Blackjack Ketchum" and Ketchum must have been a smoky black to have produced as he did. Cute's dam, Smokie Brown (Warhawk [black] x Smokie [buckskin]) was registered as brown. She could actually have been a cream dilute, given her dam's coloring. Cute was her only foal. Is it possible that Smokie Brown could have been a dun dilute? The color line would have to be coming through Smokie (Glider [chestnut] x Buck [buckskin]). Buck had one palomino and two buckskin foals. No other clearly dun horses have descended from this family.

Since blood typing and DNA have only recently been mandatory on all Morgans, it is reasonable to expect that some margin of error is present in all our pedigrees before that time. In most cases, such errors were completely innocent. Indeed, that is what the Registry Rule III was set up to address. In the past, mares may have been bred by accident and it might not even have been known to their owners, who may have thought another stallion was responsible for the foal they ultimately produced and registered as such. This margin of error would be especially possible on large estates or ranches where horses were generally turned out with a stallion for the breeding season on thousands of acres of land and not supervised. Pendleton Buck Missy was never blood typed. She is not listed as being bred by Pendleton Farms, despite having their prefix. Instead, her breeder is given as Ramon Gaier and sons of Cleveland, South Dakota. It is possible that there is a parentage error for Pendleton Buck Missy, most likely on the sire's side, or that somewhere along the way she was mistakenly switched or confused with a grulla mare. To this day it remains one of the great mysteries of colorful Morgan history.

GRAY SOURCES

Gray is a modifier that adds gray hairs to the entire body of the horse as it ages, similar to human hair. Grays are born any other color and then gradually turn white over time. Usually, the gray-ing process begins on the horse's head. Gray foals are often very dark—for example, those who are born bay will appear darker than a non-gray foal who will remain bay as an adult. They may have lighter hairs around the eyes (called goggles) and muzzle, giving a further clue that they will eventually gray. Often, they go through a roany stage along the way, when they are sometimes mistaken for roans. Most grays go through a very attractive dappled phase as they gray out, and some retain some pigment in the form of "flea bites," small freckles of base-colored hair all over their head and body. Occasionally, roaned, round white spots appear on grays. These are called chubari or Tetrarch spots after a famous gray racehorse who had them. They disappear as the horse continues to gray out. Most grays will be completely or nearly white by age ten. Homozygous grays go gray faster than their heterozygous gray counterparts. Because gray is dominant, all grays will have at least one gray parent.

As we see in Registry Volume I, grays were fairly common in the earliest days of our breed, but as time went on their numbers declined. There are only two remaining sources for gray in the present-day Morgan. The largest comes down to us from the 1969 gray mare Hy Crest Satina (Hy Crest Koko x Lady Satin [an X-registered gray mare and the source of Satina's color]). The other, rarer line is descended from the 1925 gray mare Toy (Troubadour Of Willowmoor x Rachel [gray]), via her gray son Mountain Silver Sheik, his daughter Silver Princess, and through several more generations of grays to the 1983 gray mare Miss Frosty Shadow. Her daughter, Silvershoe SunFrost, produced two gray daughters to carry on this line, Willow Bend Shadow (foaled 2005) and Willow Bend Clair De Lune (foaled 2010).



UNIQUE COLORING: FLAXEN

There is no one source for flaxen. It runs strongly in family lines, particularly in horses of Lambert and Government breeding. Two examples in the Morgan breed include Quietude Jubilee Kingdom (1) of the Lambert Morgan line, and breeder Ann Taylor's Wintergreen Shaman (2), a grandson of Beamington, Lisa Horning, up.

(photos © Carien Schippers, Howard Schatzberg)

FLAXEN SOURCES

Flaxen is a modifying gene that affects the manes and tails of chestnut horses, turning them a lighter color than the body. Some flaxen horses have silver-gray manes and tails instead of the more typical pale yellow or off-white shades of flaxen. This is thought to be caused by the sooty modifier acting on the flaxen hairs, effectively darkening their color. Flaxen can “hide” on black-based horses, as they do not have red manes and tails to show the effects of the modifier, and they can pass flaxen on to their offspring. Not much is known about the inheritance of flaxen, but it is thought to be recessive, meaning it must come from each parent.

There is no test for flaxen, so the determination is made on visual assessment alone. Light flaxen chestnut horses can be mistaken for palomino, and dark flaxen chestnut horses can be mistaken for sooty palomino or silver dapple. Knowledge of the bloodlines involved may help sort these out, and if there's any doubt, testing is available for clarification, for both the cream dilution and the silver dilution.

Flaxen is fairly widespread in the Morgan breed. Probably the most famous flaxens are those from Jubilee King lines, such as those bred by The Quietude Stud. Other prolific flaxen lines include those from The Airacobra and his grandson Beamington, Trophy, and old Government lines such as the Devan-prefixed horses and Fleetwing.

SPLASHED WHITE SOURCES

Have you seen pictures on social media of pinto Morgans and wondered, “How could this be a purebred Morgan? Morgans don't come in pinto! Do they?” Well, here is your explanation! These spotty Morgans are the result of the splashed white pinto pattern, a stealthy gene because it takes two copies of splash to produce an obvious pinto pattern. Splashed white is an incomplete dominant. What this means is that heterozygous splashes (one splash gene and one “non-splash”) have less white than homozygous splashes (two splash genes)—the gene has an additive effect when there are two of them present. It behaves like the cream gene in this respect. Crossing a heterozygous splash to another heterozygous splash only creates a more visibly pinto homozygous splash 25 percent of the time, so homozygous splashes are still comparatively rare in our breed. There are six distinct splash alleles that have been identified so far, but only SW1 (Splash White 1) has been found in Morgans.

Heterozygous splashes can actually mimic “solids,” as their markings can be very minimal. Sometimes only a bottom, heavy face marking (which may be just a tiny lopsided snip) and/or one or two blue eyes (or a partial blue eye) gives a clue that the horse is carrying splash. However, there are Morgans who have tested positive for splash who have no more indication of their splash gene than a few white hairs on their forehead or a bit of white on a heel. Several are completely solid with no white whatsoever. It certainly redefines what most people think of as pinto! This is how the splash gene hid in our gene pool throughout the years of the White Rule. Once the White Rule was repealed and the lines that carried splash were identified, breeders could create more splash individuals.

COLORFUL ≈ THE ORIGINS OF MORGAN COLORS



SPLASH SOURCES

1. Lady In Lace (Sky Chief x Rhythm's Tonga), 1959 bay splash mare, founder of the Sweet's-prefixed line of splashes. She had four white feet, a blaze, and her left eye was blue; MODERN DAY DESCENDANT: Prairie Hill Atlas (Prairie Hill Armani x Prairie Hill Grace) (2), 2020 bay homozygous splash Morgan stallion, shown at the 2023 Minnesota Horse Expo, owned by Prairie Hill Morgans. 3. W-B Her Royal Highness (WindhoverEnchantment x Icestone Whitewing), foaled 1997, is one of three full siblings from this cross who have contributed splash to the Morgan gene pool. 4. Emerald's Aristocrat (Our Emerald King x Rhythm Lovely Lady), 1957 bay splash stallion, the sire of the splash mare Royal-Glo, behind the Marvelous-prefixed splashes; MODERN DAY DESCENDANT: Stolen Affair (Oregon Country Flash CH x SLLC A Royal Affair) (5), 2019 chestnut splash (heterozygous) mare owned by Stolen Aces Farm, shown with Andy Marlett up (photos courtesy of Susan Motter and Ellie Mason, and by Jennifer Monroe and Savannah Sturm).

While heterozygous splashes may be very minimally marked or even solid, homozygous splashes have more flamboyant white markings on the body and are generally more-obviously pinto. These markings are smooth edged and spread upwards from the horse's underside. The horse looks as though it was dipped, feet-first, in white paint. They often have a white or white-tipped tail and both eyes are usually blue.

There are three sources for splash in the modern Morgan. The first descends from the 1963 mare Royal Glo, by Emerald's Aristocrat, the source of her splash. Examples are found in horses from Ellie Mason's Marvelous Morgans breeding program. The

old Midwest line of splash originates from the blue-eyed mare Lady In Lace (foaled 1959) and is found in horses with the Sweet's prefix. The final splash line comes from the cross of Windover Enchantment on Icestone Whitewing, found in some Morgans with Vicki Greer's W-B prefix.

OTHER HIGH WHITE SOURCES

It has become commonplace, in Morgans as well as in other breeds, to use the term "sabino" for any horse with flashy white markings not due to another pinto pattern (especially if those markings are roaned or patchy). In 2005, the causative gene for

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WHITE PATTERN SOURCES: FRAME OVERO & ROAN

1. Tia (Chingadero x Yellow Girl), 1965 palomino frame overo mare; MODERN DAY DESCENDANTS: Tia is the maternal great grandam of the frame overo mare God's Glorious Sky, dam of God's Dream Catcher (by TB Midnite Summers Dream) (2), deceased 2018 foal. The two known twentieth-century sources of roan coloring are the 1940 mare Torchy (3) and the 1964 mare Doll-Rose (4). The color source of the unique roan Watching Moonshadows (5), born in 2018, is the result of a rare random mutation in KIT, the locus responsible for roan.

the sabino pattern, Sabino1, was identified and a SB1 test became commercially available. However, none of the Morgans that have been tested for Sabino1 through the AMHA Registry have tested positive for this gene. It may be that some lines of Morgans are indeed SB1, so we need more owners of flashily marked Morgans to test and report their results. Heterozygous Sabino1 horses have flashy, often roaned or flecked, white markings; homozygous Sabino1 horses will be almost pure white in appearance.

Horses that have a sabino appearance but have tested to not be Sabino1 are generally described as "sabino-like." Morgan people may be more familiar with the "high white" descriptive, which means the same thing. Like true sabinos, sabino-like Morgans have high white stockings, a blaze that may wrap around the chin, and might have a sprinkling of roaned hairs or roaned patches, and perhaps a belly spot or two. The markings may have jagged

or lacy edges, and the hind leg white tends to travel upwards in a point towards the front of the stifle. There may be an increase in the number of roaned hairs as the horse ages, and these roany examples can be mistaken for true, dark-headed roans. Eventually the causative gene(s) for this phenotype will likely be discovered.

High white markings are fairly common in the Morgan breed and run strongly along certain family lines. Old Government breeding (particularly horses from Devan and Orcland Leader lines), some Lippitt families, and descendants of Menomin Flash Dancer and Aljaks Double Whammy are all strong sources of flashy white markings. There are also bloodlines that produce blue eyes to go along with their flashy white, but when tested have not been found to be splash, the more usual cause of blue eyes in our breed. The most prolific producers of this blue-eyed, high white phenotype include Farceur Morgan (possibly coming through his sire Kings Riv-

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er Morgan); Serenity Flight Time (especially through his grandson Cedar CreekHarlequin); Moorewoods Excalibur; and Ancan True Colors (possibly coming from Paramount's Nominee, or Foxfire, both of whom had quite a bit of white and are behind his dam).

Researchers originally expected to discover additional sabino mutations in the KIT locus, where Sabino1 is found (which would perhaps account for those sabino-like horses who did not test to have SB1). That has not happened. What has been discovered is another series of mutations in KIT that were originally called Dominant White, but now are labeled White Spotting—the “W” series of genes. More than 30 of them have been identified so far, and many are specific to a single breed. Just one of the Spotting/Dominant White mutations, W20, has been found in Morgans. W20 is found in many other breeds as well; it is thought to be a white “booster.” In other words, it enhances the amount of white on a horse when combined with other pinto patterns. There is some newer evidence that it adds white markings on its own as well. W20 may be present on some of the sabino-like horses in the Morgan breed, augmenting another pattern or patterns that are so far unidentified and unable to be tested for.

OTHER WHITE PATTERN SOURCES

White ticking or roan hairs—a scattering of white hairs in the coat—are fairly common in Morgans. This differs from true roan as the white hairs are much less numerous. Another pattern that produces white ticking in the coat is rabicano. It consists of white hairs interspersed in a faintly brindled pattern along the flank area, belly and up, between the front legs. It also causes a “coon tail” of white banding at the tailhead. The rabicano gene is dominant, so

rabicano horses will have at least one rabicano parent. Rabicano is comparatively rare in the Morgan breed and because it can be minimally expressed, it is often missed in descriptions, making the genetic sources difficult to track.

Roan is a pattern of white hairs over the horse's body, mixed in with the base color hairs. The points and head remain the base color. As with all the patterns of white, there are degrees of expression, so that some roans are nearly white on the body while others remain fairly dark. In Morgans, there were two known twentieth-century sources for roan, the 1964 chestnut roan mare Doll Rose (out of the roan mare Rosemont), and the 1940 chestnut roan mare Torchy (out of a roan, X-registered daughter of Mansfield). Doll Rose's roan line was represented by the late Caduceus Herod, a blue roan gelding. Torchy's line comes down to us through the Double J-prefixed horses. Their only roan descendant was the 1985 bay roan mare Viv LaMae (Double J Apollo x Carlyle La Mae), who was never bred. As a result, it was thought that the roan gene might be extinct in our breed.

Roan is dominant, so roans have at least one roan parent, but there are some very rare exceptions. There are a few documented cases in other breeds of mutations resulting in what are known as “de novo”—or spontaneously occurring—true roans. These horses do not have a roan parent; their coloring is due to a random mutation. The New Zealand-bred bay Thoroughbred stallion Catch A Bird is the most well-known example of this phenomena. Catch A Bird had white brindling over his body, which is not a typical roan phenotype. Roan is not known to exist in Thoroughbreds, but four of Catch A Bird's foals had the classic look of a dark-headed roan. Would it be possible that the same thing could happen in



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Morgans, potentially bringing roan back to our breed? For many years that has been the hope for fans of the colorful Morgan. In 2018, at Caroline Tarr's Belvue Stud in South Australia, it actually happened. Watching Moonshadows (Mt Tawonga King [black] x Mt Tawonga Sophia [bay]) is indeed a true dark-headed bay roan. It is hoped that she will eventually pass on her roan gene, returning this beautiful color to the breed.

Frame overo is a pinto pattern characterized by dark legs, a blaze or bald face, and white spotting on the sides of the horse, "framed" by the base color. Some individuals have leg white, but that may be from carrying another pattern gene along with frame. Frame can be present on any base color. As with other patterns of white, there are varying degrees of expression, from a blaze face as the only white marking to nearly white all over. Frame is lethal when homozygous; such individuals die shortly after birth due to an incomplete digestive tract and are referred to as "Lethal White" foals. Responsible breeders never mate two frame overos together for this reason. Frame is dominant, so a frame overo will have a parent that carries the gene.

The 1959 stallion War Paint (Chief Justin Morgan x Painted Girl) was a famous frame overo Morgan who has descendants in the AMHA Registry today. It is possible, due to the nature of the overo genes to hide in minimally expressed forms on certain individuals, that some of his thought-to-be-solid-colored descendants may carry the frame overo gene. War Paint sired six registered Morgans, two geldings; the buckskin mare Miss Tigee; the black mare La Mancha; the palomino mare H-Pally; and the chestnut mare Ogallala Woman. In addition, War Paint's frame overo dam, Painted Girl, also has descendants today through her other offspring.

The only frame overo Morgan extant at this time is the 2003 buckskin frame mare God's Glorious Sky (Black Tuxedo Topic Man x Sky Walker AB). Her first two foals, both colts, were frame as well but unfortunately did not make it to adulthood (colic and injury, respectively). This mare was the only foal produced by her palomino frame dam. The color line for both her frame and cream genes is coming through Sky Walker AB's dam, Q Tawny (Merry Madison x Tia). This is the same line present in the palominos behind the Goldtree-prefixed horses, and also one of the silver lines through the mare Amanda's Suzie Q. In September 2013, Sky Walker AB's maternal half-sister, the aged mare LAS Future De Oro, tested positive for frame. There may be other frame overos from these lines out there, so minimally marked (sometimes just a blaze face with no leg white) that they are not thought to be pinto. If Q Tawny, her dam Tia, War Paint, or his dam Painted Girl is in your horse's pedigree, test it through UC Davis for Overo/Lethal White (a test for determining if a horse carries frame overo or not, to ensure such horses are not bred together, possibly producing a lethal white foal). It would be wonderful to discover other sources for this rare-in-Morgans pinto pattern.

A BREED OF MANY COLORS

Once thought by many to only come in shades of bay, black, and chestnut, the Morgan gene pool was actually full of stealthy surprises. The various pinto genes hid in minimally-marked

individuals. The silver dilution lurked in some lines of chestnuts, and the cream dilution could hide under black, or simply be so dark as to be mistaken for bay or chestnut. Mother Nature threw a genetic wild card when roan returned to the breed via a spontaneous mutation. All these colors were present in the early days of the breed, but for various reasons—mostly preferential—their numbers dwindled over time. In the last thirty years, boosted by the efforts of the Rainbow Morgan Horse Association and advances in DNA-testing which allow for a better understanding of how these colors survived in our breed, the colorful Morgan is finding its rightful place alongside its bay, black, and chestnut brethren. Colorfuls are undeniably attractive to potential new Morgan owners. Capitalizing on this potential are the latest breed promotional efforts utilizing colorful, including a palomino representing AMHA at the recent Equine Affaire in Ohio and a splash at this spring's Minnesota Horse Expo. We are living in a time of increasing respect for diversity, and that acceptance has now been extended to Morgans of all colors. ■

EDITOR'S NOTE

Two clarifications may be helpful to understanding details in this extensively researched article, especially for those new to the subject.

The first relates to the "White Rule." Established in 1962, the rule barred horses with certain markings from the Morgan Registry. It was rescinded in the mid-1990s, primarily based on the consideration that a foal resulting from the mating of two registered Morgans had to be eligible for registration. (Amongst the full collection of Laura Hornick Behning's articles specific to colorful Morgans on our website, www.morganhorse.com/magazine/archive-articles/laura-behning-on-color/, is the article "High White Rising" from April 2009 if you'd like more details on the white rule.)

The term "X-registered," used frequently in this article, refers to designations found in the hardcopy registry volumes. An "X" placed before a registration number indicated the horse had been registered under "Rule Two." Rule Two permitted the Executive Committee of the Morgan Horse Club an exception to register a horse based on an application with "full particulars," rather than on immediate parentage alone. The purpose was to retain horses who might otherwise be lost to the Morgan breed. Today, using AMHA's online registry database, those horses have the letter "F" in front of their registration number. In this article you will sometimes find the dam referred to as "unknown" or "unregistered."

Registry Volume I is available online for all to peruse via Google Books by scanning the QR Code to the right or typing the following link in your web browser: qrfy.com/p/tOJbfTNQdX

