

# **Brindle Pattern Research Team Report**

**March 5, 2011**

## **Commissioned by the Saluki Club of America**

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## **I. Introduction:**

For the benefit of the Saluki Club of America's Members and the breed in the United States, the Brindle Pattern Research Team (BPRT) was constituted and charged by the Officers and Board of the SCOA to examine the question of brindle as an authentic and legitimate pattern in the Saluki breed and present supporting facts on *both* sides of the brindle issue so that Members may make an informed decision as to whether or not any action is to be taken regarding the Saluki standard.

**II. Acknowledgements:** The BPRT would like to acknowledge the evidential contributions of Carol-Ann Lantz, Sir Terence Clark, and Bernie Betlach, and the assistance of Daphne Parnham.

## **III. Abstract**

The BPRT's charge and working parameters are presented to set the stage. The question of the historical authenticity of brindle Salukis in the period up to 1939 is examined through period documents which include registrations, eyewitness accounts, and photographs. Background is provided on the 1923 Standard's creation (and subsequent changes) with respect to color terminology as well as examples of the colors not listed in the standard but nonetheless allowed. The 1927 Standard is discussed, and two Arab standards are presented. The suggestion that the terms "brindle" and "grizzle" may have been confused is addressed. A documented case of a Saluki crossbred into Egyptian Saluki stock is described. Changes in the Middle East since 1918 are summarized and a list of post-1960 instances of brindle Salukis is given. A detailed explanation of DNA inheritance of coat color is presented along with commentary on the genotypes of Salukis registered as brindle. Some brief facts about crossbred Salukis in the UK, USA, and Middle East are given. Finally, appendices and references complete the report.

## **IV. Methodology**

After being charged by the Board to investigate the issue of brindle coat in Salukis, two questions were developed by the Research Team to guide our research and deliberations.

Research Question #1: Was the pattern brindle acknowledged and accepted by Saluki authorities in the time of the 1923 English and 1927 American Standards?\*

Research Question #2: Does the evidence currently available, including DNA color and pedigree analysis, establish the brindle pattern as native to the purebred Saluki?

The RT agreed to put out a call for documents and studies that might have bearing on the topic (see section V. for details). Criteria to establish the value of submissions were developed and a proposed outline for the report was agreed upon. A group email list was created for discussion and sharing of documents, and conference calls were held for synchronous discussions. The RT agreed to keep our deliberations confidential during our process. See **Appendix A** for the BPRT's charge and evidence criteria. A timeline for the work was developed in order to meet the Board's due date of 1/31/11 for the report, however, an extension was requested and the due date was moved to 2/28/11. The Reference section contains a list of resources consulted. It would be an understatement to say that hundreds of hours have been invested in this research project.

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\* The "time of the standard" being defined as the period from 1922 - 1939 – that is from the first concerted activities to achieve Kennel Club recognition to the hiatus in dog activities necessitated by World War II.



## V. Definition of Evidence:

In preparing this fact-based report, the Brindle Pattern Research Team wished to examine all sides of the issue and consider relevant historic and genetic documents about the brindle pattern in Salukis. To be considered as evidence by the BPRT, submitted documentation must meet the following criteria:

- Photocopies, scans, or faxes of *primary or secondary documents*\* with provenance, e.g., photographs, eye-witness accounts, letters, articles, columns, and the like, identified with bibliographic information to include the publication source, author, date, and page number.
- Published (print or web) papers on coat color/pattern genetic studies regarding genotype and phenotype, identified by journal name, author, article title, issue/volume, date, and page numbers or web address).
- Hearsay, 2<sup>nd</sup> or 3<sup>rd</sup> hand accounts were *not* considered, neither were quotes and excerpts that are undated, un-attributed, out of context, or partial, and opinion and surveys.
- Artistic representations of Salukis were *not* considered as artists' personal style and technique combine with the limitations of their chosen medium to produce an image that cannot have the authenticity and detail of a photograph.

\*Primary documents are first hand accounts written in the period under study – 1900 to 1939. Secondary documents are period commentary on primary documents.

On Oct. 22 and Nov. 15, 2010, calls for fact-based documents pertaining to the brindle issue were made to readers of the SCOA and Saluki-L lists (permission to cross-post was given). The BPRT's criteria were stated and a deadline was set for Nov. 30, 2010. Subsequently, the call for submissions was also passed along to a Saluki list in Great Britain. Six individuals submitted a total of thirty-five documents. The consensus of the RT was that only fifteen of these met the definition of evidence stated above for this report and were therefore relevant (several submissions were already known to the RT and therefore not counted). Permission was sought to reproduce published studies and articles and in some cases where this was not possible, Fair Use practices were observed. See **Appendix B** for the matrix of documents submitted and accepted as legitimate evidence.

### **PART 1: Was the pattern brindle acknowledged and accepted by Saluki authorities in the time of the 1923 English and 1927 American Standards?**

Summary: This question is addressed by giving some background on the standard and by listing the historical evidence *For* and *Against* brindle Salukis in the time of the standard.

In their eager efforts to achieve breed recognition and sustained popularity in the post-World War I years, Saluki fanciers were generally inclusive and had perhaps a broader definition of Saluki type as regional variants of the breed were considered to range from Tunisia to Northern Anatolia and Persia. Photography was not as sophisticated as it is now and many images have

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\* Primary documents are first hand accounts written in the period under study – 1900 to 1939. Secondary documents are period commentary on primary documents.

been lost over the years or only available as poor newspaper reproductions. Language can present challenges, as the English of the UK in 1923 is different from that of the US in 1923 – and still more different from that of today. Descriptions of color were entirely subjective and often conflicted with another’s view of the same dog. Recordkeeping was less precise and all too often dependent upon one individual. Surviving primary documents and photographs are spread between private collections and archives on two continents.

## **VI. Creation of the 1923 Standard and the Meaning of “Colour”**

In order to fully understand the arguments for and against brindle in Salukis as being known and accepted in the time of the standards, a few explanations are necessary to set the stage.

**A. “Colour”** – The word “colour” with respect to dogs in England in the 1920s, was used at the time to encompass not only color, but *also* patterns and markings as may be seen in the Official Standard of the Great Dane from 1907: “Colour.— The colors are brindle, fawn, blue, black, and harlequin. The harlequin should have jet black patches and spots on a pure white ground; grey patches are admissible but not desired: but fawn or brindle shade are objectionable.”<sup>1</sup> Note that solid colors and the patterns brindle and harlequin are *all* placed together under the heading of “Colours” and this holds true for other British standards of the day.

In fact the term “pattern,” as is applied to brindle today, was not used in the context of dog coat color in England in the 1920s. From a British dictionary of the period - “pattern, *n.* a person or thing to be copied: a model: an example: style of ornamental work: anything to serve as a guide in forming objects.”<sup>2</sup>

**B. Describing What They Saw** – The “colours” in the standard describe the dogs that were seen in England in 1923. The principle architects of the first Western Saluki standard were Florence Amherst, Brigadier Lance and Gladys Lance. While Amherst had only seen Salukis in Egypt, during his soldier’s career, Brigadier Lance had known Salukis in India, Egypt, Syria and Palestine – as well as greyhounds, lurchers, and mixed hunt packs. In 1923, the year that the Saluki or Gazelle Hound Club was formed in England and the breed standard written and adopted, there were only 10 registered Salukis<sup>3</sup> out of a population of 53 displaying the standard’s colors (41 belonging to members, 7 belonging to non-members, and 5 in quarantine).<sup>4</sup> Chocolate, red & white parti, blue/gunmetal, and solid black appeared after the standard's adoption – and then only sporadically.

**C. Defining & Explaining the Colors** – In the “Technical Glossaries” of the major dog books of the period, *The New Book of the Dog* (1907), *Dogs: Their History and Development* (1927), and *About Our Dogs* (1931), “brindle” is *not* listed at all – but then neither are other commonly understood “colours” such as “white”, “black”, “tan,” and “red.” However, more complex terms like “merle,” “Harlequin,” “tri-colour,” and “grizzle” are defined (“grizzle” was “iron-grey” or in one instance “bluish-grey mixture of coat”).

The sole instance of a definition of brindle in a British dog book turns up in *The Practical Dog Book* (1931) - from the “Glossary: Technical Terms Explained”, (where brindle is noted as one of the “Coursing Terms”):

“Bd: Brindle. Dark streaks or spots on grey or tawny ground.”

(Note: “Bd” being the abbreviation for the color from coursing forms).

The first publication of the 1923 Standard lists: “Colours – White, cream, fawn, golden, ‘red’,\* grizzle and tan, tricolour (white, black and tan) and black and tan.”<sup>5</sup> The whole or self-colors are generally self-explanatory and not under discussion here. However, the 1920s phrases “black and tan”, “white, black, and tan”, and “grizzle and tan” need explanation in order to be understood in the British context of eighty-seven years ago.

These three phrases note color combinations, so a “black and tan” was a dog that was black with *only* tan points. Ch. Sarona Kelb (black with tan points and white markings) was confusingly registered as a “black and tan.” It is often the case in this time period that a dog was registered as a “black and tan” and its white markings not mentioned. Photographs of the first Saluki champion, Orchard Shahin show her as what we would now call “black and white particolor” (white with black spots) – but in fact she had light tan or fawn as well and was registered as a “tricolour (white, black and tan)” which described the parti-color dogs they were seeing at the time. It should be noted that while “parti-colour” was used in certain breeds at the time, it would not become part of the Saluki color lexicon until much later.

“Grizzle and tan” has been a source of much debate, but when it is understood that “grizzle” to the English at that time only meant “grey”<sup>†</sup>, the phrase “grizzle and tan” was their description for the colors of the pattern we now call “grizzle”.<sup>6</sup> The phrase “grizzle and tan” proved a little cumbersome and in December 1923 we see the birth of the first Saluki (Piastre) registered as just “grizzle.”<sup>7</sup> By 1924 and 1925, it was common to just call them “grizzle” or “rufus grizzle”, “silver grizzle”, etc. “Deer colored” was another description for the grizzle pattern and was used on registration papers.

It is worth noting that these same “colours” were being used to describe the Salukis in the English popular press as early as May of 1922 – almost a year *before* the standard was written and adopted.<sup>8</sup>

**D. The 1923 Standard: Collaboration, Latitude, and Subsequent Changes** – Writing the 1923 Standard was a collaborative process that combined the expertise of the SGHC authorities while soliciting input from all club members. The breed standard was first discussed at the inaugural club meeting on Feb. 8 1923 and a committee was formed to update Florence Amherst’s 1907 Slughli Shami Standard.<sup>9</sup> Gladys Lance, the Club secretary, circulated the provisional standard to all the members for comments before being acted upon by the SGHC Committee –

“After the suggested standard – which ‘is not laid down in too definite a form, so as to give the judges plenty of scope for the present.’ – has been perused by the members, a committee meeting of the Saluki Club will be held to consider criticism, if any.”<sup>10</sup>

Amherst’s 1907 Standard had 677 words of flowery specificity while the 1923 standard was a model of brevity at 265 (the second shortest sighthound standard at the time) – and its scope now allowed for the smooth coat, expanded height range and additional colors.<sup>11</sup> It was approved on Feb. 22 1923 and submitted to the Kennel Club. The 1923 Standard remained unchanged until January 1950 when the Kennel Club published new breed

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\* The color “red” was actually in quotation marks in this first publication of the 1923 Standard.

† As to spelling, British English uses “grey” while American English uses “gray.”

standards that were more uniform. The SGHC with Kennel Club approval had added the phrase “or variations of these colours.” to the end of “Colour” section.<sup>12</sup>

The 1950 Saluki Standard remained intact until 1986 when the Kennel Club imposed a number of changes that generated much controversy in the SGHC. The Colors were now “White, cream, fawn, golden red, grizzle, silver grizzle, deer grizzle, tri-colour (white, black, and tan), black and tan and variations of these colours, i.e. black fringed fawn, black fringed red not brindle.”<sup>13</sup> Unhappy with the 1986 standard, both the Saluki or Gazelle Hound Club and the Northern Saluki Club jointly composed and voted on a new standard in 1989 and submitted it to the Kennel Club for approval. Under “Colour” it read simply, “Any colour or combinations are permissible.”<sup>14</sup> In 1992, the Kennel Club rejected this standard but for one non-color item. Errors in the 1986 Standard would not be corrected until 1998 and at that time the Color description became, and is current today as, “Any colour or combination of colours permissible, other than brindle.”<sup>15</sup>

**E. Arab Standards:** It is interesting to note that two Arab standards for the breed do not mention color. See **Appendix C** for period examples.

**F. Registration Liberality** – The English Kennel Club accepted *any* color that an owner cared to list on registration papers as descriptive of his or her dog without question. Of course at this time, the actual mechanics of color inheritance were not known and people could only predict colors based on observation and were often surprised when the litter was actually born. Color descriptions were extremely subjective and this degree of personal interpretation can make analysis of color inheritance difficult and in some cases impossible. The Bahraini import Abu Soufi (born 1921) is registered with the KC in June 1924 as a “fawn.” And yet, Gladys Lance observing her in the ring at Crufts in 1925, describes Soufi as a “taking white bitch.” Based on this conflicting information, it would be difficult to say with certainty whether Abu Soufi was fawn or white or somewhere in between.

In 1927, when Salukis were recognized in America, the American Kennel Club also allowed the same liberality towards registrations of colors not listed in the breed standard. In fact, registrations show many more departures from the 1923 & 1927 Standards’ colors than conformance with them. Lists of Saluki colors actually registered with the Kennel Club and American Kennel Club may be found in **Appendix D**.

This relaxed attitude towards registrations is further born out by the fact that the Kennel Club also accepted registrations of dogs (not just Salukis) directly from country of origin whose unknown sire and dam were not obstacles. The offspring of unregistered, imported dogs could also be registered. Perhaps the ultimate example of this latitude was the ability to register mixed-breed dogs as seen in this typical entry from *The Kennel Club Gazette* under “Crossbreed Registrations”:

“Cottenham Duchess, b Mr. W. J. Creed; Tiger of Holloway (Mastiff), d Juno (Great Dane-Mastiff); br, owner; wh, Nov. 3, 1921.”<sup>16</sup>

## **G. The American Saluki Standard**

When the AKC recognized Salukis in 1927, there were few specimens in America and nowhere near the depth of experience in the breed that the English had. The 1923 Standard was adopted in total as the 1927 Standard – but for the inexplicable substitution of the adverb “well” for the adjective “wide” in describing the hipbones. Nevertheless, the 1927 Saluki Standard remains intact from that day to this – the oldest unchanged, AKC sighthound standard.<sup>17</sup> As the American Saluki standard is copied from the English Standard, most of the Research Team’s research has focused on the meaning of the latter.

## **VII. The Evidence *For* Brindle Salukis in the Time of the Standard**

### **A. KC & AKC Registrations:**

**1927 Zitoun** born, registered **red brindle** with Kennel Club in 1933.

**1929 Amherstia Nazarat** born. Registered **red brindle with cream markings** with the Kennel Club in 1930 and with AKC in 1931 as Amherstia Nazarat O’Redledge.

**1932 Tanoomah** born (to Nazarat). Registered **brindle** with AKC in 1933.

**1933 Amherstia Ibn Darak** born. Registered **grey brindle** with Kennel Club in 1936.

**1935 Hakim** born. Registered **black brindle fawn and white** with Kennel Club in 1935.

**1938 King Necho** born. Registered **brindle** with AKC 1940.

**1939 Cavama & Kasim Baba** littermates born. Registered **white/brindle markings** with Kennel Club in 1939.

### **Discussion:**

Six registered brindle Salukis in England is not a large population in the 17-year period between 1922 and 1939, but no recorded protests on these registrations have come to light. The fact that at least one brindle was entered in Kennel Club shows, another took a placement at the SGHC Members’ Show and was entered in a Saluki Racing Club meet, may suggest that brindle was not an issue meriting action on the part of the SGHC. However, this is not to say that the SGHC was entirely complacent in allowing any imported dog to be registered as a Saluki. Although no specifics have been recorded, around 1924, Vice President Lance led the club in a vote to send a letter of protest to the Kennel Club about the registration of particular dog as a Saluki that they did not consider typical of the breed.

Of these six UK Salukis registered as brindle, only one photograph exists. Amherstia Nazarat was photographed as an old dog and she is one of the few that produced registered offspring. One of Nazarat’s puppies was Tanoomah, a male registered as brindle by the AKC.

**Facts about the Nine Registered Brindles 1927 – 1930** (see **PART 2. IV.** for the pedigrees and genetic information on these dogs).

- **1927 Zitoun** born, registered **red brindle** with Kennel Club in 1933.

### **Pedigree Notes**

On his dam’s side, Zitoun’s grandparents are desert imports (Sarona Kelb & Binte-el-Nablous). On his sire’s side, desert imports are three and four generations back and one section of his pedigree goes back as far as Florence Amherst’s original import of 1895, Luman.

**Zitoun**, a registered red brindle (born 1927 and registered in 7/1933: *KC Breed Supplement*), born June 22, 1927 was owned by Miss Gertrude Desborough (founding member of the SGHC, Secretary of the Ladies Kennel Association for over 18 years, Secretary of the Saluki Racing

Club, dog show organizer, and owner of a large boarding kennel establishment that offered a full range of services. Beginning in 1935, she kept Florence Amherst's Salukis at her kennels.

“I thought readers might be interested to know that at the Saluki or Gazelle Hound Club's Members Show held at Ranelagh Club, Barnes, on 29 June 1934, reserve place in the mid-limit dog class was awarded to a red brindle dog, Zitoun, belonging to Miss Desborough. It is worth noting that the judge, Miss H. I. H. Barr (Grevel Salukis) had had (in the words of Mr. W. J. Nichols, who wrote the critique) ‘great opportunities of seeing Salukis in their native land. ‘The dog in question was described by Mr. Nichols as having “attractive outline, good movement, sound.’ Coming across this reference makes me wonder why it is now being proposed that brindle should be color non gratis and summarily expelled from the Standard.” - Nicholas Jaques (Nicholas Jaques was the husband of Jeanna Jaques who was one of the founding editors of *Saluki Heritage* magazine and well known breed historian).<sup>18</sup>

The judge, Miss Barr, and her mother Mrs. Harold Barr were the owners of the famous Grevel Irish Wolfhounds before adding Salukis to their kennel in 1924. Miss Barr was an SGHC member, one of the owners of the famous brood bitch, Hama of Homs, a recognized breed expert and judge by the SGHC, and was one of a handful of breeders that kept the breeding stock alive in England during the hard years of World War II. As brindle is one of the colors of the IW (her original breed), it would not have been mistaken by Miss Barr for the grizzle pattern.

Daphne Parham writes: “He was born on the 22<sup>nd</sup> of June 1927. Sire Nablous Hharkem Dam. Nablous Kuwaiyas Ketir. He was registered in 1933 when he went to Miss Desborough and then he went to the Hon. Florence Amherst. The only show report I have on him in 1933 states 'not the type I like, but his excellent bone, feet and movement got him there on the day'. He won 1st in Under-graduate dog. The Judge was Miss F. A. White and the show was The Metropolitan and Essex Canine Society.”

No identified photographs or offspring.

**1929 Amherstia Nazarat** born. Registered **red brindle with cream markings** with the Kennel Club in 1930 and with AKC in 1931 as Amherstia Nazarat O'Redledge

**Common Ancestors** - While it is inevitable that the small population of Salukis in England would have shared elements in their pedigrees, it is notable that registered brindles Zitoun, Nazarat, and Ibn Darak share the common ancestors, Malik-el-Zobair x Zobeida-el-Zobair at the third or fourth generation level. Nazarat is only one generation away from the desert on her sire's side and two and three generations away from imported desert stock from Jordan and both southern and northern Iraq. The colors of her paternal grandparents are unknown as is the case with her maternal grandmother's parents and her maternal grandfather's great grand parents.

**Amherstia Nazarat** (later Amherstia Nazarat O'Redledge) “red brindle, cream markings” born March 5 1929, registered with the KC in Feb. 1930 and registered with the AKC in Oct. 1931.

At the age of 11 months, Nazarat was registered with the Kennel Club as “red brindle, cream markings” by her breeder, Florence Amherst who was considered the foremost authority on Salukis in England at the time), and who knew the difference between brindle and grizzle having

bred several specimens of the latter. The AKC duplicated this color description verbatim six months later (when she was 17 months old) on her registration in America.

Amherst (in her 77<sup>th</sup> year) writes a letter to Edward Aldrich (Diamond Hill) wherein she calls Nazarat both a cream and “deer color” or “grizzle with black face markings” - and also makes a mistake about Nazarat’s parentage (*AKC Gazette*, May 1937) Likely the first instance of calling her a cream is an error but given that, the possibility that the second color description may also be inaccurate must be considered.

In 2003, breed historian Carol-Ann Lantz recalls that as a teenager, she visited Diamond Hill Kennels for the first times in late 1941 and early fall of 1942 and remembered three dogs – the parti-colored Akbar Malik, a blonde dog named Luman, and Nazarat. “Mr. Browne [Aldrich’s kennel manager] also pointed out to her Amherstia Nazarat O’Redledge; a grey-faced, aging lady, curled up asleep in her bed.”<sup>19</sup> Nazarat died at age 14 in July of 1943 so at the time of Carol-Ann’s visit she would have been either 12 or 13 years old. Carol-Ann recently expanded on seeing Nazarat and noted her color as “faded red” (Submitted Document #1). Walter Browne also called Nazarat a “grizzle” (Submitted Document #33 – see **1. X. A-C** for additional discussion on Nazarat’s color).

There is also the possibility that she was sabled or a lightly or partially marked brindle. If Nazarat was truly *not* a brindle, there is no evidence at all that anyone objected to her being registered as such. It appears that she was never shown in England and only a few people might have seen her there, but club members would have read her color description when it was published in the Stud Book.

See **1. X.** for the one photograph of her that exists. Nazarat had offspring – one of which, Tanoomah, was registered as a brindle.

**1932 Tanoomah** born (Nazarat’s son). Registered **brindle** with AKC in 1933  
No identified photographs or offspring.

**Amherstia Ibn Darak** registered “grey brindle” and born 8 Nov. 1934, s. Amherstia Shamardal x d. Tess. Owned by breeder/exhibitor Mr. G. Gadsdon, c/o Crown Kennels, Wichbold, Droitwich. Mr. Gadsdon was never a member of the SGHC and seems to have only been active for a couple of years.

- Not listed in the Studbook through 1939 but is listed in Breed Supplement 6/36 and also noted by Daphne Parnham *Saluki Heritage* #20, 1991.

- In Oct. 1936 Amherstia Ibn Darak (owned by Gadsdon) is listed in the Kennel Club Show catalog as being entered in Post-Graduate class with four other dogs.

- In Oct. 1937 KC Show catalog Ibn Darak is now listed as being owned by Florence Amherst and entered in both Undergraduate (five competing) & Open dogs (five competing). Clearly, Florence Amherst thought enough of the dog to buy or take over ownership and show him at least once.

- Amherstia Ibn Darak transfers & littermate:

Registered to Florence Amherst & transferred to Mr. G. Gadsdon in June 1936.  
from Mr. G. Gadsdon to Florence Amherst July 1937.  
from Florence Amherst to Mr. G.M.N.S. Jackson, November 1937.

Littermate: Amherstia Dan of Beersheba (d), the Hon. Florence Amherst, s. Amherstia Shamardah [sic], d Tess; br Mr. G. Gadsdon, wh. Nov. 8 1934.

- No identified photographs or offspring.

1935 **Hakim** born. Registered black brindle fawn and white with Kennel Club in 1935.

- No identified photographs or offspring.

1938 **King Necho** born. Registered brindle with AKC 1940.

- No identified photographs or offspring.

1939 littermates **Cavama & Kasim Baba** born. Registered white/brindle markings with Kennel Club in 1939

- No identified photographs or offspring.

## B. Brindle Text References

Besides the six KC and three AKC brindle registrations, five significant mentions by eye witness Saluki authorities indicate that brindle Salukis were known from this period:

- Major Count A.W.D. Bentinck, DSO**, notes that he saw brindle Salukis in the Middle East. He is quoted in 1924 on the origin of his tri-color\* Salukis (Rishan a feathered male, and a Feena, a smooth female) by Will Hally, an experienced reporter and columnist for *Our Dogs*:

“Major Bentinck tells me that he found this difference in the garb of the sexes to be the general Saluki rule in the district around Mosul; this brace were given to Major Bentinck by an Arab and came from a village about forty miles north of Mosul. Although he traveled through Iraq, Syria, and Palestine, Major Bentinck saw only two other Salukis resembling his own in colour; but there were quite a number of black-and-tans, **brindles**, and fawn or red chestnuts.”<sup>20</sup>

### Discussion:

Bentinck soldiered in Africa, France, Egypt, and the Middle East where he traveled extensively and hunted with Salukis. In addition to being familiar with horses and foxhounds, he was a well-known importer of a pair of black and white parti-color Salukis from northern Iraq (near Mosul) in 1924 (prefix: Kurdistan). As these were rare colors in England at the time, Kurdistan stud service and puppies were greatly in demand. Bentinck was an early member of the SGHC and the club's delegate to the Kennel Club's Council of Representatives, a Committee Member of the Saluki Racing Club, and judged at least one SGHC Member's Show. Major Bentinck was the first person to take imported Salukis back to their country of origin.

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\* Parti-colors consisting of white, black, and pale tan.



- b. **Miss H.I.H. Barr** advertises her imported Sheik of Darwin in *Our Dogs* in 1925: “The young Saluki dog, Sheik of Darwin, is only just released from quarantine, so has not yet been shown. He is a rich **golden brindle**, bred in Palestine; a beautifully proportioned dog, with perfect front and shoulders. There are two cream bitches still in quarantine, with which (with the aid of “Sheik”) their enthusiastic owner hopes to found a small kennel of these aristocratic and beautiful dogs.”

**Discussion:**

Miss Barr’s advertisement in *Our Dogs*, 1925.\* Miss Barr (prefix Grevel) was a founding club member and had a famous kennel of Irish Wolfhounds and Salukis. She was named one of SGHC’s breed judges by 1937 and judged the Club’s Members Show that year. As brindle is one of the Irish Wolfhound’s standard colors, Miss Barr would have been well familiar with it. Sheik of Darwin was born in May 1924 and registered in December 1925, so his were not puppy colors. Sold to Major Maurice Talbot of Hollywood, California, he was registered in Sept. 1930 as “golden and black” and his name was changed to Haji Khan Sheik of Darwin. Mated to Kachiri of Grevel (black & tan) they produced litters whose colors were registered as black, black & tan (two), black & gazelle, golden red, golden, and cream and golden.

- c. **Mrs. Gladys Lance** (prefix Sarona), Secretary of the SGHC acknowledges the existence of brindle Salukis when she writes in 1926: “The Saluki, as is well known to most, can be almost any colour, as the English Greyhound, **except brindle**. The fawns and reds appear to be the most usual in England, and a fawny grey, known as grizzle is sometimes seen. The particolours, however are comparatively rare, especially the white, black, and tan (tricolour). The tan is often so pale that a more descriptive colour would be pale fawn. Ch. Sarona Kelb’s father, Seleughi, was this colour, and the first to be born in this country were his grandchildren by Ch. Sarona Kelb ex Sarona Sarona. Of these only one is now living, Mrs. Crouch’s famous bitch Orchard Shahin. Major A.W.D. Bentinck was the first to import a pair of tricolours, Rishan of Kurdistan and Feena of Kurdistan.”<sup>21</sup>

**Discussion:**

Two possible meanings can be ascribed to this quote. Gladys Lance may be saying that brindle Salukis are not proper - or that one has never been seen in England. However, the quote is interesting for three reasons: A) it is the only statement found to date that specifically mentions brindle with reference to showing, B) the fact that Gladys Lance made such a statement suggests that there were in fact brindle Salukis in England to be objected to, and C) her description of the grizzle pattern “a fawny grey, known as grizzle is sometimes seen” indicates clearly that there was no confusion in the Saluki fancy between brindle (which did not need description or explanation) and the more unusual

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\* In *Saluki Heritage* #19 p. 44 - Editor Jeanna Jaques inserts her opinion about “brindle being another term for “grizzle” in that time period).

grizzle pattern. Gladys also makes clear the connection between “tricolour” and “particolour.”

**d. The Honorable Florence Amherst** (prefix Amherstia) who was then SGHC president and an acknowledged Saluki expert) is asked to write the chapter on Salukis for *Hutchinson's Popular & Illustrated Dog Encyclopædia* (Document #22).

In addition to Amherst's usual romantic and historical prose about the breed, there is a more pragmatic section that includes husbandry, club history, and dog show information. The 1923 Standard is reproduced as well as this commentary about Saluki appearance:



“In appearance the Saluki is graceful, dignified and refined, built on lines that govern speed and endurance... In the East, the colour of the hounds is selected by the tribes to suit the districts over which they have to hunt their quarry. The variations in colour are cream, fawn, pale golden, dark golden, red, blue-grey, black-and-tan, black-and-white, particolour, **red brindle and grey brindle**. The action of the Saluki is different from that of the Greyhound...”<sup>22</sup>

From her collection of photographs of Salukis both in England and in the Middle East, Florence Amherst chooses to include two photographs of Egyptian tribesmen with a brindle hound.<sup>23</sup>

### Discussion:

Amherst lists two varieties of brindle in *Hutchinson* and these could represent the three brindle registrations known at the time of publication – Amherstia Nazarat (bred by Amherst), Amherstia Ibn Darak (bred by Mr. Gadsdon and later purchased by Amherst) and Zitoun (owned by Amherst's friend and founding club member, Gertrude Desborough).

The photographs provided by Amherst of the brindle hound are dubious, but were nonetheless chosen by Amherst as representative of Salukis in the Bedouin environment. If Amherst had objections to the brindle pattern in Salukis then one would suppose she would have selected *other* photographs from her extensive collection. No objections to either the text or photo on behalf of the SGHC or its members has been discovered, and indeed, Lt. Commander David Waters R.N. (Honorary Vice President of the SGHC) cites its publication by Amherst (and other evidence) as proof that brindle was acceptable. **See Appendix E.**

### The Listing of “red brindle and grey brindle” in Hutchinson:

It has been suggested that brindle was an inadvertent insertion on the part of an editor but this is highly unlikely. *Hutchinson's Encyclopædia* was released in some 50 parts over the course of a year. Entries ranged from husbandry to medicine to breed specifics, and it can be estimated that some 700 topics were covered - each written about by an expert in the field. In the days before electronic editing and layout, these chapters were typeset by hand one at a time.

Upon closer examination, there are two distinct sections to the Saluki entry – one that is very flowery and laced with exoticism and the other that is more pragmatic which discusses husbandry, SGHC club details, notable breeders, the standard, and conformation showing. The historical section is consistent with Florence Amherst's writing style. It is the pragmatic section that is out of character and suggests she had a co-author. Of her three best friends at that time, Gladys Lance had withdrawn from Saluki activities because of the terrible fire in the Sarona Kennels years before and Francis Joan Mitchell (El Nablous) was not a writer and left only a few paragraphs for posterity. This leaves Gertrude Desborough, long time secretary of the Ladies Kennel Association and founding SGHC member. At the time the *Hutchinson* piece was written, Florence Amherst was no longer able to keep dogs in her London flat and they were boarded at the Desborough Boarding Kennels. Not only was Gertrude very experienced with many breeds



By courtesy] [Hon. F. Amherst.  
IN NATIVE SURROUNDINGS.  
A Bedouin in the Desert of Saliha with two of his favourite breed.

and husbandry, she was the organizing force behind dog shows and club activities. Further, she not only knew about registered brindles Amherstia Nazarat and Amherstia Ibn Darak, but also owned a brindle of her own - Zitoun. Based on these facts, it is probable that Desborough contributed the more pragmatic text including the mention of “red brindle and grey brindle” to Amherst’s work.

- e. **Mrs. Carol Ann Lantz**, a Saluki historian, writing of the early breed years in America, notes rare instances of brindle Salukis:  
“One of those California dogs was registered as a “liver and tan” (could have been a chocolate???) [sic] – and there are at least two **brindles** who appeared in the old days, one springing from Amherstia-Redledge background and another bred by Evelyn Southwick from the Bararey-Jibal lineage.”<sup>24</sup>

### Discussion:

Mrs. Carol Ann Lantz (née Paice) began her involvement with Salukis in the 1940s, and was good friends with Esther Bliss Knapp. She is the author of “The Saluki in America - the Early Years.” In this article, Mrs. Lantz goes on to distinguish between brindle and grizzle: “Grizzles were also a rarity, though several were registered as grizzles in the late 1930s.” This statement also confirms that there was no confusion between brindle and grizzle as has been suggested.

### f. Saluki Experts on the Variety of “Colour” in the Saluki

The following quotes by breed authorities in the early years are relevant to the brindle question as they indicate the liberal and inclusive attitude towards color in the breed – as well as colors not specifically listed in the breed standard.

**F. B. Fowler**, reporter & columnist for *The Dog World* –Salukis were a most satisfactory entry in numbers and quality. Their varieties in colour and coat may have been perplexing, but there was no doubting their aristocratic type.” (“Salukis,” *The Dog World*, Oct. 5 1923).

**Brigadier General Lance** (Saron) – “The criticism is often made that this breed varies much in type and colour. The first is accounted for by the fact that the breed extends over a very large area, which comprises sandy tropical deserts, and mountainous regions covered in snow in the winter. The colour varies as much as in the British Greyhound, and can be black, red, or white, with any variations between these. The colours vary somewhat according to the country; the fawns being prevalent in Mesopotamia and Arabia, while in Syria and further north black and tans, whites and blacks and rich dark reds occur.” (“Salukis - Kennel Club Show Critique”, *The Kennel Gazette*, Oct. 1924, 757).

**Will Hally**, reporter & columnist for *Our Dogs* –“The variation in Saluki type and colour is a question which crops up continually in my correspondence, and as General Lance's explanation is the same as my often-given own, I quote it here. ‘The breed extends over a large and varying area, comprising sandy, tropical deserts, and mountainous regions covered with snow in winter; then again as in

our own British Greyhound, the Saluki colour varies from black, red, and white to further variations or mixtures of these.” (“Foreign Dog Fancies,” *Our Dogs*, Oct. 31 1924).

**Will Hally**, “The black-and-tans seem to be the most popular of all colours, though every hue is keenly sought after.” (“Foreign Dog Fancies,” *Our Dogs*, Jan. 18, 1924).

**Brigadier General Lance** – “The colour of the Saluki varies considerably, as in the English Greyhound. Fawn, varying in shade from the palest cream to red, are the commonest colours, and is almost universal in Mesopotamia and Arabia. In Syria and Asia Minor, besides shades of fawn, black and tan, or light fawn, and also black and white are met with. Pure white or black also occur. A colour that is found where most Salukis are bred is a grey grizzle, with light fawn muzzle and legs, and whatever colour may be there is almost invariably a white tag to the tail.” (“The Saluki or Gazelle Hound”, *Pedigree Dog Breeding for Pleasure or Profit*, ed. Capt. Jocelyn Lucas, MC, London: Simpkin, Marshall, Hamilton, Kent & Co., 1925, 193).

**Gwen Angel** (prefix Mazuri) – “Colour is unpredictable, and a litter may run a wide range.” (“Saluki Manners”, *Our Dogs*, Dec. 8., 1944).

**Vera Watkins** (prefix Windswift) – “It stands to reason that any people who value the purity of race as highly as do the Arabs must have developed certain distinct and individual strains among their hounds. At the same time – since it is an age-old tradition that these hounds are presented as gifts to Kings and Nobles in other lands – it would seem that these strains must from time to time be crossed with one another. Moreover, Since the purpose of this special breeding has always been to produce a superb hunting hound, the Saluki must have been bred to suit the game and the terrain of his tribe’s locality.”

“It is generally admitted that this accounts for the variation in color listed in the Standard. It must also be conceded that any Standard set down in black and white must leave room for considerable variation in interpretation – a variation which has caused more than a little puzzlement among British owners and breeders.” (“Some Clues to British Saluki Pedigrees To-Day,” *The Saluki or Gazelle Hound Handbook*, originally published 1951 & reprinted 1968, 7).

**Vera Watkins** in *Saluki: Companion of Kings* (1974), she notes that certain points of the standard have generated “a good deal of controversy” over the years and divides the standard into two sections for ease of discussion – the second section deals with the controversial points – Eyes, Paws, Tail, Height, and Movement, the Smooth Variety, and General Appearance.

“Colours ‘White, cream, fawn, golden, red, grizzle and tan, tricolour (white, black and tan) and black and tan or variations of these colours.’ Any colour or

combination of colours is permissible. Chocolate is a variation of red. The tribes originally bred Salukis to match the ground over which they hunted. Black and Tan is accounted for by black lava desert. As from time immemorial Salukis have been presented from one ruler to another as gift of honour, the colours must have been mixed and mixed again. According to Miss Amherst, 'whole-coloured dogs with shading should be preferred.' In a pale-coloured Saluki, a 'smoky' muzzle is said to be a sign of 'pure breeding.'"

**Mrs. H.M. Parkhouse** (prefix Shammar & President of the SGHC 1970) in *The Saluki or Gazelle Hound Club: Standard of Points & Notes for Breeders and Judges* (1970) the standard entry on Colours is given "White, cream, fawn, golden, red, grizzle and tan, tricolour (white, black and tan), or variations of these colours"). Separately, the club lists "Points the Saluki Club would ask judges to note in the interest of the breed," and under this heading, commentary is given—"Colour: Any colour or combination of colours is permissible."(*The Saluki or Gazelle Hound Club Standard of Points & Notes for Breeders and Judges*, January 1<sup>st</sup>, 1970).

#### **g. SGHC, SCOA, & AKC Notes on Colors *Not* Listed in the Standard**

**Florence Amherst**, in 1907 writes: "The usual colours are golden, cream, white, fawn, **black**, black and tan, also **blue and silver grey**. Parti-colouring appears, especially white clouded with yellow." (Leighton, Robert, *The New Book of the Dog*, 1907, 479).

**A. Croxton Smith**, noted dog author writes in 1922, "EASTERN GREYHOUNDS: The Persian hound is a larger edition of the Arabian, carrying a little stronger coat. Black and tan is a much-esteemed colour, although fawn is the commonest, and **all-blacks** are sometimes seen." He goes on to talk about Afghans, Rampurs, and Borzoi. ("Dogs for Sport and Pleasure," *The Daily Telegraph*, April 13).

**Will Hally**, dog correspondent/journalist writes in 1923 "...Mrs. Foster Mitchell, of the Fresco Kennels, has just imported a trio – one is a white-and-fawn of the feathered variety, another is an **all-black**, and the remaining member is a russet-colored bitch." ("Foreign Dog Fancies," *Our Dogs*, April 20 1923).

**Miss Crookenden** advertises twice in *Our Dogs* during January 1924: "Show specimen puppies for sale by Orchard Jaffa ex Rushford Piastre; born October 29; typical creams, reds, **blue**; prices from 15 gns. [guineas] - Miss Crookenden, Ours, Strete, Dartmoth."

**Brigadier General Lance** (prefix Sarona): writes in 1925, "**Pure white or black** also occur." ("The Saluki or Gazelle Hound", *Pedigree Dog Breeding for Pleasure or Profit*, ed. Capt. Jocelyn Lucas, MC, London: Simpkin, Marshall, Hamilton, Kent & Co., 1925, 193).

**Gladys Lance** (prefix Sarona): in a 1926 *Dog World* column talks about “tricolours” (white, black, and tan) and notes her Sarona Petra bitch as being one and having been mated to Sarona Haroun, produces seven puppies - “three are true tricolours, two white and black, **and two white and blue.**” (“Salukis”, *Dog World*, Dec. 10 1926, 1858).

**Gwen Angel** (prefix Mazuri - commenting on the placements at the Reading show in 1939) “Mrs. Parkhouse brought out a new one in Ayesha of Shammar, a dainty little lady of the somewhat rare **gunmetal** colour, which started her show career with a first and third.” (“Salukis,” *Our Dogs*, July 7 1939). In this same paragraph, Angel notes a “pretty grey grizzle” so clearly she is not confusing “gunmetal” with the grizzle pattern. *Our Dogs* reporter O.M. Couper referred to Ayesha as “an exceptionally sound little lady of rather attractive colouring, **smoke blue**, nice head and outline, clean shoulders, when in full feathering should do well.”

Later that year, Angel notes that Lady Gardner (Knightellington) believes her “Knightellington’s Warrior, will turn out to be a **gunmetal**, he reminds her very much of Mr. Parkhouse’s Ayesha of Shammar. The colour is somewhat rare, but very striking when accompanied by really dark eyes.” (“Salukis,” *Our Dogs*, Dec. 8, 1939).

In 1939, Angel describes a litter from Mazuri Arabella out of Spindrift of Lynne (both “medium grizzles”) where one pup was a very dark grizzle and, “One is like her maternal grandsire Ch. Zebedee el Kizl, and the other four are pure white, lightly marked on heads and bodies with black, fawn, red and **grey** respectively.” (“Salukis,” *Our Dogs*, April 28, 1939).

**AKC commentary** on Salukis (1935): “In color, the Saluki can meet the demand of the most fastidious, as while cream and fawn seem to predominate, there is red, grizzle and tan, **white and chestnut**, tricolor (black, white and tan), as well as **solid black**. (American Kennel Club, *Sporting Dogs (Hounds) The Breeds and Standards as Recognized by the American Kennel Club*, 1935, 82).

**Edward K. Aldrich Jr.** (prefix Diamond Hill) writes in 1942: “As the terrain varies, so too do the colors, which may be fawn, gold, red, black and white, black and tan, grizzle, **solid black** and cream.” (“Dog of the Month: The Saluki, or Gazelle Hound of Arabia,” *The Tailwagger Magazine*, March 1942, 11).

**SCOA Yearbook 1949:** “The colors of the Saluki can meet the demands for the most fastidious, as while cream and fawn seem to predominate, there is red, grizzle and tan, **white and chestnut**, tricolor (black, white and tan), as well as **solid black** (*The Saluki Club of America, Year Book 1949* – revised reprints of editions 1930, 1935 and 1945).) This exact language on color is repeated not only in the next edition of *The SCOA Year Book*, but in the *AKC’s The Complete Dog Book* 1951, 268.

## VIII. The Evidence *Against* Brindle Salukis in the Time of the Standard

### A. Text References

- a. **Gladys Lance**, (prefix Sarona & Secretary of the SGHC) writes in 1926: “The Saluki, as is well known to most, can be almost any colour, as the English Greyhound, **except brindle**. The fawns and reds appear to be the most usual in England, and a fawny grey, known as grizzle is sometimes seen. The particolours, however are comparatively rare, especially the white, black, and tan (tricolour). The tan is often so pale that a more descriptive colour would be pale fawn.”<sup>25</sup>

### Discussion:

As noted earlier, this statement is significant as it is the only primary document found to date that specifically mentions brindle Salukis as being either objectionable or non-existent. In her statement, Gladys is clear that there was no confusion between brindle and the grizzle pattern. Gladys Lance was the secretary of the club at the time of publication but it is uncertain whether this statement in her *The Dog World* column is put forward as personal opinion or SGHC doctrine.

### b. The Absence of Evidence for Brindle

- No specific statement of brindle as an *acceptable* Saluki color in the show ring has been found.
- There were no brindle Salukis in England known to SGHC members at the time of the standard’s writing.<sup>26</sup> Where color was indicated, none of the early desert imports showed brindle ancestors.
- No photographs have come to light of an identifiable, undoubted, brindle Saluki either imported to or bred in England. The two photographs in Hutchinson may actually show a brindle Sloughi or Greyhound as it has a black mask (more typical of the former) and it is unclear if its ears are pendant, rose-fold, or cropped. Bedouin in that area did incorporate one English Greyhound into their lines<sup>27</sup> and this Saluki might have such an ancestor (see **1. XII**). Finally, the presence of an Italian soldier and automobiles in one photo could suggest that the hounds did not belong to the Bedouin at all.<sup>28</sup>
- Major Count Bentinck’s statement from Section VII above about brindle Salukis in the countries of origin is the only one of this kind found so far: “Although he traveled through Iraq, Syria, and Palestine, Major Bentinck saw only two other Salukis resembling his own in colour; but there were quite a number of black-and-tans, brindles, and fawn or red chestnuts.”
- Gwen Angel (Mazuri) lists breed colors in her 1951 manuscript later printed in *The Saluki* (Summer/Autumn 1993): “There are so many variations in colour that even the most fastidious owner can make a choice. From the palest cream to the deeper shades of fawn and golden; reds; grizzles varying from fawn to red and brown, with the dark mask over the eyes and legs shading to cream or fawn; black with tan, fawn, or white markings; chocolate with cream or tan, and eyes of a greenish hazel; white and black, white and red, or white and fawn parti-colours, each has its own charm.”

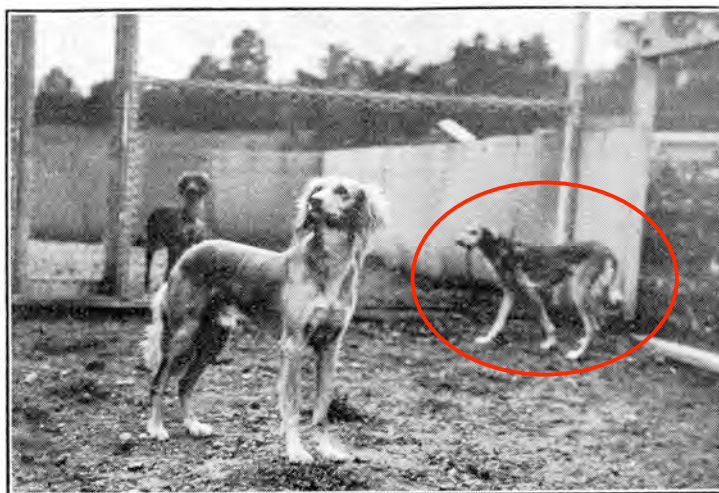


“In their native land the Arabs select a colour to suit the surroundings and breed to it accordingly, thus we find one particular colour predominating in certain districts. In the Sahara and Syria the Salukis are small, light in bone and usually white, cream or fawn in colour. Throughout Palestine and further north towards the Black Sea the hounds are heavier in build and the colours darker, from red to the various shades of grizzle, black and tan, or white, black and tan.”<sup>29</sup>

- There is a possibility that some or all of the nine Salukis registered as “brindle” were registration mistakes or clerical errors. As the old handwritten KC registration slips were disposed of after transcription, this possibility cannot be absolutely determined. The conflicting information on Amherstia Nazarat’s color and eyewitness testimony certainly allows for the possibility of error. See p. 10 and below for discussion.

### IX. Photographic Evidence & Eye Witness Testimony on Amherstia Nazarat:

Only one poor photograph of a registered brindle Saluki has come to light – Amherstia Nazarat (“red brindle with cream markings”) but eyewitness accounts indicate that she may not have actually been a brindle but rather a red grizzle. The one extant photograph of her does not show any brindle markings. Registered at the age of 11 months, it must be assumed that any puppy markings had either disappeared or were there to stay. Three statements say she was not a brindle as an adult.



CH. REDLEDGE SHAIBA

REDLEDGE ABU BEN ADAM

AMHERSTIA NAZARAT O'REDLEDGE

A) In the *AKC Gazette* May, 1937, Edward Aldrich quotes a letter from Florence Amherst wherein she mentions Nazarat’s color twice: “Sharifa, Nazarat and her sister were *pale cream* from Prince Abdullah of Transjordan which I had.” Florence has made a mistake here, as Nazarat was definitely not a pale cream. Four paragraphs later she says: “The Salukis which are called by the Bedouin *deer colour*, like Nazarat, that we in the West, called *grizzle with black face markings* which are very attractive and always in the same place on the features.”

B) Carol-Ann Lantz recalls seeing Nazarat as an old dog of 12 or 13 years in Submitted Document #1. Nazarat died in 1943 at 14 years<sup>30</sup>

Document #1: “A long time ago Esther asked Walter Browne for some info on Mr. Aldrich's original three Salukis – Redledge Abou Ben Adam, Amherstia Royala Ahwa

O'Redledge, and Amherstia Nazarat.”

“He described them thoroughly and – this will throw a new angle into your research – He described Nazarat as grizzle in color. He took care of her for years, so no one would know more about her color than he did. So Daphne says red in color as do I – the Stud book says red brindle with cream markings and I recall her as a faded red.”

“Now you must recall that this was my first trip to Diamond Hill in very late 1940. I had never seen a living, breathing Saluki before – only pictures. I was probably ten feet away from her. She didn't even lift her head, just opened her eyes.”<sup>31</sup>

C) Mr. Walter A. Browne was Edward Aldrich's Diamond Hill's kennel manager and on page 42 of his undated and unfinished manuscript *The Saluki in America* (Document #33),\* he wrote the following note about two non-litter mate Amherstias imported to America and noted Nazarat's color:

“Mrs. Hills imported from the Amherstia Kennels in England, of Florence Amherst, two bitches, Amherstia RoaylaAhwa [sic] O'Redledge, “Goldie,” and Amherstia Nazarat O'Redledge, “Nazi.” These bitches were very different in type and temperament, both as to each other and to Abu Ben Adam, or the Macomber stock... “Nazi” was a good-sized bitch, grizzle in color, with very little feathering and badly splayed feet.”

## **X. Were the Terms “Brindle” and “Grizzle” Confused?**

June Applebee-Burt in her 1989 article “Brindle - or Grizzle?” discusses the difference in patterns and hair color, a true brindle Saluki named Onud Anubis el Ghazal from Germany (Saluki Heritage Spring 1987), and notes that two judges in the 1930s called certain Salukis “brindle” in critiques when photographic evidence and owner testimony shows that they were in fact “grizzle.”<sup>32</sup> She goes on to posit that the terms were inconsistently applied in the early days. In the *Saluki Heritage* note about the golden brindle Sheikh of Darwin, Jeanna Jaques suggests as Applebee-Burt did that brindle was an interchangeable term for grizzle in the 1920s and 1930s, but based on the evidence below, this assertion is not supported.

As noted previously in 1.VI. C., “grizzle and tan” is used by Saluki fanciers to describe the color combinations of the pattern and gets shortened to just “grizzle” as early as 1924. The Nablous imports, Ebni and Binte, were probably the most well known grizzle pattern dogs of the earliest years and were actually registered as and called “deer coloured” and described as “that fascinating grizzle colour, with fawn points.”<sup>33</sup> Dog colors in show critiques and ringside commentary are frequently described as “grizzle,” but the term “brindle” is not found apart from the above noted registrations and one advertisement.

Florence Amherst clearly knew the difference. She registered Amherstia Nazarat at the age of 11 months in 1930 as a brindle but was known to have bred dogs with the grizzle pattern. There were at least two distinct grizzles in the Amherstia “Q” litter of August 22 1932. A photograph of these two can be seen in Hutchinson on p. 1564. Further, Amherst describes the grizzle face in a 1937 letter to Edward Aldrich, “The Salukis which are called by the Bedouins deer color like

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\* Browne's notes were typed posthumously. The Research Team is indebted to Carol Ann Lantz for sharing portions of this marvelous resource with us.

Nazarat, that we, in the West, call grizzle with black face markings, are always very attractive and always in the same place on the features.”<sup>34</sup>

Gladys Lance and her husband bred a number of Sarona grizzles but no brindles of record. They understand the two different patterns and as noted in **1.VII. B. c.**, Gladys addresses each separately when she says that Salukis “can be almost any colour, as the English greyhound, except brindle” and goes on in the next sentence to describe the grizzle pattern as “a fawny grey, known as grizzle.”

As noted in section **1. VI. C** above, definitions from the technical glossaries of British dog books of the day do not support the idea that brindle and grizzle were interchangeable.

## **XI. Greyhound Bred to Saluki in Egypt**

There is a documented case of an English Greyhound being bred to Egyptian Salukis in 1887. Lady Anne and Wilfred Blunt had traveled extensively in the Middle East and raised Arabian horses and English Greyhounds at their homes near Cairo and Crabbet Park in England. They gave their Greyhound bitch Manjustine to Prince Kamal Ahmed, who later bred her to one of his Salukis. In 1903, the Blunts ran across Manjustine’s offspring in a hunting party northeast of Cairo. Abdallah Ibn Majelli of the Hannadi tribe was hunting with several hounds descended from that Greyhound-Saluki litter. Prince Ahmed had given the puppies to his kinsmen and friends who had no objection whatsoever to the out-cross. Blunt remarked,

“In spite of many crosses with Arab greyhounds the English type is well preserved, though the dogs are smaller and lighter. Their master told us they were quite acclimatized, retaining something of their English speed.”<sup>35</sup>

Lady Anne gives more details in her journal:

“On first speaking, by H.F. [Wilfrid] to the two nearest us, they seemed very suspicious of us but afterwards their chief was most amiable, he proved to be Mohammed Ibn Majello, owner of large lands near Karaim and a connection of Saoud el Tihawi [sic] between who and Majello there is a certain jealousy. 15 years ago we spent a night camped by Majello’s place, the father of the man now met out hunting. He remembered that we had paid a visit there. He told us that all the beautiful greyhounds, 15 fawn and one much lighter, nearly white, of his pack were descended from the greyhound (Manjustine) we gave to Kamal Ahmad Pasha in 1887, through her son Jerboa. It is curious how marked the type was for they were all extremely like Manjustine and we had just seen them coursing a hare and turning in the most surprising way. Poor hare it had no chance.”<sup>36</sup>

Lady Anne Blunt names two prominent men connected with these Greyhound/Saluki crosses – Mohammed (called Abdullah in Wilfrid’s journal) the father of Ibn Majello and Saoud el Tahawi. Both Blunts note that these men were from Abu Hammad – not far from the El Salhiya area. Florence Amherst’s founding pair, Luman and Ayesha, had come from “brother Sheikhs “Saoud and Magelli” of the Tahawys of El Salhiya (Al Salhiyah).”<sup>\*</sup> The Blunt’s Greyhound gift pre-dates the birth of Luman and Ayesha by eight years and so it is perfectly possible for a

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<sup>\*</sup> The two photographs that Amherst published in Hutchinson are of Tahawy tribesmen and their hounds.

fraction of English Greyhound blood to have been present in the lines of Florence's first imports.<sup>37</sup>

## **XII. Summary**

Brindle was rare in the time period under study, but it was known and accepted by the SGHC and dog show world at the time – along with other colors/patterns not mentioned in the 1923 Standard. Even though Gladys Lance made a statement about brindles that could be interpreted in two ways, registered brindles were still shown and at least on two occasions won prizes. It is significant to note that no objections to or negative commentary about the few brindle registrations have come to light. Lack of positive commentary on the pattern and no offspring of the few registered brindles in England suggest that it was not a desirable or popular color and the pattern seems to vanish from both the existing English and American gene pools at the end of the 1930s.

### **PART 2: Does the evidence currently available, including DNA color and pedigree analysis, establish the brindle pattern as native to the purebred Saluki?**

Summary: Moving out of the period of the 1923 and 1927 Standards, this section of the report considers post-World War II occurrences and mentions of brindle Salukis to the present day, cross-bred Salukis and social factors, scientific evidence, and modern DNA testing and pedigree analysis.

Beginning in the 1960s, the first attempts to work out Saluki color inheritance are seen but without the sophisticated gene mapping currently available and a large collection of coat data, educated predictions can only be made about the more complicated color genes. Recent Saluki-specific and related inheritance studies have given us a better grasp of genotype expression. In this period, brindles begin to reappear in various places. Perhaps most significant is the forgotten AKC champion Ch. Zuri Zukieh of Pine Paddocks known as "Grindl." Although no photograph of her has been found, her "bronze brindle" coat pattern is described in detail in 1967 by breed authority, Esther Bliss Knapp in the *AKC Gazette*.

#### **I. Changes in the Middle East**

It is appropriate to note here that since the end of World War I, the Middle East and its cultures have changed rapidly with the break up of the Ottoman Empire and the advent of the oil industry, irrigation, modern transportation, and communication technologies. The deserts are no longer the isolated domain of Bedouin and hardy adventurers, and most of their original dwellers have migrated to urban environments and become increasingly westernized. Fewer and fewer people understand the role of the Saluki in traditional Bedouin life. With economic growth, Western guest workers have brought their own dogs with them and Saluki crossbreeds inevitably happen. Some Arabs purchase Western dogs and have experimented with crossbreeding Salukis and Greyhounds. The hallmarks of the nomad, their camels and the famous black tents, have been replaced by air-conditioned vehicles and houses. In many countries, it has long been illegal to hunt gazelle or other game, and wealthy devotees of Bedouin culture take their Salukis to Sudan or Pakistan to hunt for sport. Only in remote areas do villagers still need their Salukis to catch meat for the pot.

Worth noting at this point is the frequent lack of agreement between Middle Eastern Saluki breeders as to what is or is not correct. They have their preferences just as Westerners do today with any breed of dog. While white or cream Salukis are highly desirable in some areas, Charles Carrington, who had known Salukis since 1935, stated that sheikhs in Egypt, Libya, and Palestine told him personally that white in a Saluki was an indicator of pi-dog impurity and a litter with even one was strangled to preserve purity. In another area, it was the appearance of a smooth puppy that was a disgrace and the entire litter also killed. Interestingly, each sheikh also insisted that the first Saluki came from his particular area.<sup>38</sup>

## **II. Brindle Instances from 1960 Onward**

- A. 1964** Joe Pendry (El Jehemma) sees three brindle Salukis in Saudi Arabia (Document #23). “My experience with them came in 1964 while transiting Saudi Arabia on my way to Khartoum. On the bus from the airport to Jidda, I noticed a Bedouin encampment. In that, I noticed three brindle Salukis. I was surprised as I had never seen a brindle during my several years in Egypt and Jordan. They were clearly Saluki and clearly brindle marked. Two were blk & tan and one gold color.”<sup>39</sup>
- B. 1966**, Esther Bliss Knapp (Pine Paddocks) writes about color and her Salukis, “Added to the increasingly varied color scheme came assorted grizzles and deep reds; later my three chocolates from Mazuri kennels and a brindle from Libya added to the interesting array.”<sup>40</sup> Bliss notes that the brindle smooth came from Tripoli where it was called a “Slughi” By the locals but “Saluki” by the German shipper. She attributed this to language difference and considered Sloughi, Slugi, Seleughi and Saluki to all be the same.<sup>41</sup>
- C. 1967** USA - A Pine Paddocks feathered brindle finishes her AKC championship and although no photograph of her has been found, she is described in detail by Knapp – “Instead of lazing her days away in her canine hotel room, while her family was away vacationing in Brazil, this August, the Jack Hayes' mischievous ‘Grindl’ made her show ring debut up Illinois way, and romped her way through to her title, handled by her host, Dick Cooper. A unique bronze brindle with black points, Zuri Zukieh of Pine Paddocks has most unusual tiger markings which, interestingly, are identically matched on both sides even to the small dots! Her face has the familiar grizzle mask-marking, accounting for her nickname, ‘Grindl.’” *AKC Gazette*, December 1967. The *ASA Caravanserai: AKC Champions 1927-1977* confirms Zuri Zukieh as a Champion.
- D. 1968** USA Emir El Tigre a brindle smooth is born at Pine Paddocks but does not appear to be shown or bred. (Document # 27).



- E. 1969** "The Rainbow's the Limit," By Esther Bills Knapp in *Saluki World*, Fall 1969, p.19, excerpted, (Document #28). "The next 'new' color came in the early 60's, with a feathered brindle, here, and as of mid-summer, '69 I have added two smooth brindles to my collection, one from Libya and one home-bred. I know of no others in the country, which is rather odd in a way, with assorted brindles quite common in the closely related breeds such as Whippets and Greyhounds."
- F. 1976** *American Saluki Association Newsletter*, July 1976, "Basic Color Genetics in the Saluki" by John Falotico, M.A. "The Saluki exhibits almost the full range of color. However, although all sighthounds are related certain colors do not appear in some sighthounds. Brindles or chocolates or solid blacks are rarely found in Salukis."\* Ann Birrell of the SGHC cited this article in a letter to the editor of *Saluki Heritage* Autumn 1983, saying that if brindle is excluded as a rare color then must not solid black and chocolate be as well?

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\* Nine years earlier in 1967, *Western Saluki Association Newsletter* (Vol. I, No. II) published "Genetics of the Saluki" by John Falotico M.A., and Anton Stehr, Ph.D., and "Genetics of Color Breeding in the Saluki" John Falotico, M.A. in Vol. I, No. III). Falotico, Stehr, and Winifred Lucas Ph.D. were attempting to systematically study color genetics and collecting data on litters and answered color inheritance questions for readers. While brindle is not mentioned in these two articles, Falotico does say in his second article, "In the Saluki we are quite fortunate in not being restricted to color or color pattern. This seems to apply frequently to older breeds, hence possibilities are almost infinite."

- G. 1970s Egypt** - Amy of Egypt was obtained from the Tahawy tribe in Egypt by Ron and Elaine Wolfe in the mid-1970s and documented in *The Saluki Summer/Autumn* 1987 (Document #13). No records have been found of her being registered in England or having produced a litter.



AMY

- H. 1980 Onud Anubis el Ghazal**, a German Champion, born on Jan 5, 1980, his grandmother is the red brindle Aini with pedigree largely unknown on his dam's side. He was bred by Peter Falstrauh and owned by Christine and Klaus Herbst. Lydia Elbracht - El Mashhur Salukis, bred him to her bitch Min Ma Sha Shabanu in 1983 and one of the offspring El Mashhur Bi'la was registered as a brindled fawn.

- I. 1980-1990** - Sir Terence Clark, an Arab linguist and diplomat, served in Iraq and still works and travels extensively in the Middle East photographing Salukis. He found brindle Salukis/hounds in Saudi Arabia, United Arab Emirates, Oman, Iraq,

Saluki Heritage Spring 1985

DIALOGUE

**MORE ON BRINDLE**

As I often see a brindle Saluki in the show ring in Germany and live quite near three brindle Racing Champion Salukis, I was surprised to read that it is proposed to exclude this colour from the British Standard.

I believe that the first brindle Saluki was registered in Germany 15 years ago by the late Dr Peter Faulstich. As far as I know, there are two distinct brindle lines - one from Peter Faulstich and the other a more recently imported litter from Iran belonging to the Sattarzadehs, an Iranian family living in Hamburg who imported a complete litter from Iran, three of which were brindles. The Sattarzadehs retained a brindle dog and gave a dog to Mr Michael Neumann and a bitch to Mrs Matthes. Both these owners also live in Hamburg. These Salukis are distinctly brindle and I will try

and get photographs of them. Mrs Constance O Miller's genetic theory (*Saluki Heritage No 7*, Dialogue) would seem to fit perfectly, since Mr Sattarzadeh told me that the sire was brown and the dam *ganz weiss* - the absolute cream no doubt.

Peter Faulstich's brindle line seems to go back to Raquas el Saraje ex Aini (an import from Iraq) breeding. These two produced Amara el Ghazal, who was mated to Samoems Shakindra (Int Ch Samoems Ser Babe Men ex Int Ch Burydown Vasha) and produced Ha'al Aini, registered in the German 1978-1979 Stud Book as black with brindle markings. Raquas el Saraje and Aini also produced the dog Arsak Sayyadin al Jessira (and I wonder whether Arsak

Sayyadin al Jessira is litter brother to Amara el Ghazal). When Arsak was mated to Murtah Parzi (imported from Iran), Onud Anubis el Ghazal was a brindle offspring. I enclose pictures of him. He is not such a definite brindle as the Sattarzadeh's litter but all the same a very attractive golden fawn with light brown stripes.

I don't quite know how Mrs Miller's genetic theory fits in with Onud Anubis el Ghazal, as his mother, Murtah Parzi, was sand coloured with a black mask and I have been told that Arsak Sayyadin al Jessira was a grizzle but it could be possible that Arsak had some brindle markings. Certainly his litter mate Adad Sayyadin-al-Jessira is rather like a grizzle tri-colour but with the tan bits round his eyes looking decidedly brindle.

It is rather a shame that the colour brindle should be discarded in Britain when it is a very attractive and striking colour.

Yours sincerely  
Jan Siedman-Brown  
(Germany)



Murtah Parzi (import from Iran), dam of Onud Anubis el Ghazal, owned by Irena Filzinger



Onud Anubis el Ghazal. The first litter he sired produced one brindle



Onud Anubis el Ghazal, born 1.5.1980, owned by Chr and K Herbst



and Iran, but pedigree information is not always available. A few brindles are identified as crosses. Noteworthy are the brindle puppies seen in 1992 at al-Khazna, the palace Sheikh Zayed, the Emir of Abu Dhabi and Saluki breeder.\*

**J. 2010** Sir Terence Clark writes an article summarizing his experience with brindle Salukis in the Middle East (Document # 2). While he does note that some brindles are likely crosses others are found in poor areas that have no contact with Westerners or their dogs. Additionally, he makes a statement to the SGHC about his observations of brindle Salukis (Document # 32) See both in **Appendix E**.

**K. 2010** Miss Bee, a feathered fawn with light brindle markings (registered in the USA as a “cream”) wins the SCOA National Specialty and later becomes an AKC Grand Champion.

### **III. Genetic Color Analysis**

A summary of dominance, mutation, recessive, masking, etc.

#### **Description of coat color and pattern in purebred Salukis**

Casey Gonda, DVM, MS

The brindle mutation can be found worldwide and occurs in many dog breeds and mongrels. Interestingly, it has not been identified in wolves, the dog’s closest ancestor, but its vast distribution and presence among so many diverse breeds suggests that it is an old, well conserved mutation. Though the gene itself is rather complex, the manner in which it is passed from generation to generation is straightforward, and not subject to breed predilection. As a dominant gene, it follows a predictable mode of inheritance, wherein only one affected parent is necessary to transmit the gene to the offspring (pedigree “K”). A brindle dog must have one or two copies of the mutation to display the phenotype. Under certain circumstances however, the gene may be passed on, yet not be visible as predicted by the sire and/or dams phenotype (pedigree “L”). In such a case, DNA tests, which are now commercially available for Salukis are necessary to accurately determine the dog’s color/pattern genotype and the source of the transmitted gene. (<http://www.healthgene.com>)

The genes responsible for producing most of the colors/patterns described in Salukis have been identified at the molecular level and include alleles (listed in order of dominance) at the loci shown below. Often, the interaction of alleles at two (or more) loci is necessary for certain colors or patterns to be expressed in the phenotype. For example; Grizzle dogs must have at least one copy of the grizzle mutation ( $E^G$ ) and two copies of the allele for black-and-tan ( $a^t/a^t$ ).

#### **A. Saluki color loci**

MCR1 “extension”:  $E^M$ ,  $E^G$ ,  $E$ ,  $e$  (black mask, grizzle pattern, black-and-tan, self cream/red)

ASIP “agouti”:  $a^y$ ,  $a^t$  (fawn, red, cream, black-and-tan)

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\* Articles by Sir Terence Clark with photos of brindle: “Some Encounters with Salukis in Iraq,” *The Saluki*, Summer/Autumn 1988, “Salukis in Oman,” *The Saluki*, Winter/Spring 1992, “Farewell to Arabia,” *The Saluki*, Summer/Autumn 1994, “Brindle in Salukis from the Countries of Origin (COO),” *Society for the Preservation of the Desert Bred Saluki Newsletter*, Fall 2010



DEFB103 “K”:  $K^B$ ,  $k^{br}$ ,  $k^y$  (black, brindle, fawn/red/cream/black-and-tan)

TRYP1 “B”: B, b (black, chocolate—also called brown or red)

(Note: The genetic mechanism(s) responsible for solid blue-grey, or white markings associated with parti-color and Irish patterns has not yet been fully characterized in Salukis).

### **B. Saluki colors and possible genotypes**

**White:** Solid white Salukis probably do not exist. Dogs that appear white are actually very pale creams or parti-colored dogs on which the base color (often a very light cream) has been almost completely “covered” by white.

**Cream/Golden/Red:** These “yellow” dogs can be various shades of light cream through dark red, sometimes born with a black overlay, which eventually disappears on many as they mature. Some may be left with a few black hairs mixed in ear furnishings, facial hairs or muzzle, giving the appearance of a “sooty” mask. Those who are born with no black hairs or overlay *may* carry a recessive form of cream ( $e/e$ ) that prevents the production of black hair anywhere on the body, so genetic testing may be necessary to differentiate an  $e/e$  cream from an  $a^y$  cream.

**Fawn:** These are yellow dogs with variously placed black hairs, sometimes also referred to as sable. They often have a mixture of black and yellow hair in ear and tail furnishings and along the sides and back of the neck, shoulders, barrel and croup.

*Genes:* MCR1—“E,” “e”; ASIP—“a”; BD103—“k<sup>y</sup>”

**Grizzle and Tan:** These two terms describe both a pattern and a color. Grizzle is a vernacular term, in use for over a century to describe a color or mixture of banded colors that develops as each hair emerges from the cortex of the hair shaft, resulting in a grey/brown mottled appearance when hairs are grouped together.

In Salukis, the term grizzle is also used to denote a characteristic color pattern that encompasses the dorsal portions of a dog’s head, body and extremities. Coincidentally, the mutation responsible for this pattern, seen in some of the earliest desert imports was discovered in 2010 by Dreger and Schmutz during a coat color study in Salukis. On the head, this pattern produces a dark overlay of color that begins abruptly just above the eyes and when viewed from the front and against the light face and muzzle, gives the appearance of a dark widow’s peak. This dark overlay continues over the top and sides of the head, neck, shoulders, back, croup and tail—leaving the underside of the body, legs and tail the lighter base color. The intensity of the pattern depends on the exact combination of colors making up the base and overlay colors, which can range from very light cream to a deep orange base and an overlay which can range from almost black or brown to cream. On occasion, some pups born with this pattern will lighten substantially or fade in color as they age and may even appear almost completely cream as adults. Other dogs may instead darken in color as they age, with an increase in pattern definition. Interestingly, this is likely the pattern Florence Amherst was attempting to characterize in her original standard and in other correspondence which she has been quoted as describing such dogs as “deer-like” in color.

*Genes:* MCR1—“E<sup>G</sup>” and ASIP—“a<sup>t</sup>”

White, black and tan: A combination of colors, used to describe parti-colored dogs or predominantly black-and-tan dogs, having any number or combination of white markings on the underside of the neck, chest, abdomen, legs or feet (tri color).

*Genes:* MCR1—"E;" ASIP—"a"; K—"k"

Black-and-tan: A pattern produced in combination with black and tan. When the recessive form of the Brown gene is present, the dog will be chocolate-and-tan, with brown nose leather and eye rims.

*Genes:* MCR1—"E;" ASIP—"a"; K—"k"

### **C. Colors not listed in 1927 SCOA Standard**

Chocolate: Brown--The recessive form of black, sometimes referred to as red dilute. In salukis colors produced are brown-and-tan, grizzle and cream/red with liver pigment.

*Gene:* "b" Two copies are necessary.

Black: Solid black, often combined with white on feet or chest. Black and white parties are genetically "true black" and distinct from black-tan-white parties.

*Gene:* "K<sup>B</sup>" One copy of the dominant gene necessary.

Blue/Silver grey: Solid blue-grey. Sometimes described as gun metal or smokey grey that may be homogeneous or vary in intensity over certain points of the body; often with lighter ear and tail furnishings.

*Genes:* Mechanism not yet characterized in salukis—possibly multiple alleles and/or modifiers linked to K<sup>B</sup>.

Brindle: An alternating pattern of grouped black and "yellow" hairs appearing at birth as discrete or mottled "stripes." The pattern may encompass all or only a portion of the dog's head, body and extremities. The intensity of the striped pattern can vary considerably between individuals from quite distinct to somewhat faint at maturity.

*Gene:* "k<sup>br</sup>" One copy of the dominant mutation necessary.

Black mask: Rare in domestic, purebred Salukis-- not the same as the "sooty" muzzle seen sporadically in certain bloodlines and individuals.

*Gene:* "E<sup>M</sup>" One copy of the dominant gene necessary.

### **D. Possible genotypes**

Cream/red (no black hair): (e/e), (a<sup>y</sup>/a<sup>y</sup>, a<sup>y</sup>/a<sup>t</sup>, a<sup>t</sup>/a<sup>t</sup>), (K<sup>B</sup>/K<sup>B</sup>, K<sup>B</sup>/k<sup>br</sup>, K<sup>B</sup>/k<sup>y</sup>, k<sup>br</sup>/k<sup>br</sup>, k<sup>br</sup>/k<sup>y</sup>, k<sup>y</sup>/k<sup>y</sup>)

Cream/red (+/-black hairs): E<sup>M</sup>/E<sup>M</sup>, E<sup>M</sup>/E, E<sup>M</sup>/e, E/E, E/e, E<sup>G</sup>/E<sup>G</sup>, E<sup>G</sup>/E, E<sup>G</sup>/e, (a<sup>y</sup>/a<sup>y</sup>, a<sup>y</sup>/a<sup>t</sup>), (k<sup>y</sup>/k<sup>y</sup>)

Fawn: E<sup>M</sup>/E<sup>M</sup>, E<sup>M</sup>/E, E<sup>M</sup>/e, E<sup>G</sup>/E<sup>G</sup>, E<sup>G</sup>/E, E<sup>G</sup>/e, E/E, E/e, (a<sup>y</sup>/a<sup>y</sup>, a<sup>y</sup>/a<sup>t</sup>), (k<sup>y</sup>/k<sup>y</sup>)

Grizzle: E<sup>G</sup>/E<sup>G</sup>, E<sup>G</sup>/E, E<sup>G</sup>/e, (a<sup>t</sup>/a<sup>t</sup>), (k<sup>y</sup>/k<sup>y</sup>)

Grizzle-and-brindle: (E<sup>G</sup>/E<sup>G</sup>, E<sup>G</sup>/E, E<sup>G</sup>/e), (a<sup>t</sup>/a<sup>t</sup>), (k<sup>br</sup>/k<sup>br</sup>, k<sup>br</sup>/k<sup>y</sup>)

Black-and-tan:  $E^M/E^M$ ,  $E^M/E$ ,  $E^M/e$ ,  $E/E$ ,  $E/e$ ,  $(a^t/a^t)$ ,  $(k^y/k^y)$ ,  $(B/b, B/B)$

Chocolate-and-tan:  $E^M/E^M$ ,  $E^M/E$ ,  $E^M/e$ ,  $E/E$ ,  $E/e$ ,  $(a^t/a^t)$ ,  $(k^y/k^y)$ ,  $(b/b)$

Black:  $E^M/E^M$ ,  $E^M/E$ ,  $E^M/e$ ,  $E/E$ ,  $E/e$ ,  $(a^y/a^y, a^y/a^t)$ ,  $(K^B/K^B, K^B/k^{br}, K^B/k^y)$

Brindle:  $E^M/E^M$ ,  $E^M/E$ ,  $E^M/e$ ,  $E/E$ ,  $E/e$ ,  $(a^y/a^y, a^y/a^t)$ ,  $(k^{br}/k^{br}, k^{br}/k^y)$

Brindle-and-tan:  $(E^M/E^M, E^M/E, E^M/e, E/E, E/e) (a^t/a^t), (k^{br}/k^{br}, k^{br}/k^y)$

(Note: Additional information and photographs illustrating colors and patterns can be found at: <http://homepage.usask.ca/~schmutz/dogcolors.html> )

### **E. Salukis and the Brindle Mutation**

The original Salukis imported to England during the late 1800s and early 1900s by the Hon. Florence Amherst (Amherstia), Brigadier Gen. Lance (Sarona) and others form the basis for the majority of bloodlines present in modern Salukis, both here in America and the rest of the world. Contributions can also be traced through Germany's el Saluk and el Saraje kennels, which combined the pure Iranian blood of kennel von Persien with Saronas imported from England. Additionally, other mid century imports, such as Abdul Farouk (1945), owned by Esther Knapp, circumvented England by coming directly to America, thereby introducing a "non English" infusion of desert blood.

England was home to many of the earliest breed clubs and organizations devoted to the development and maintenance of purebred dogs during this period. The first official breed standard was written in 1923 by members of the Saluki or Gazelle Hound Club, formed in the same year. This club included a handful of individuals and breeders who had acquired Salukis directly or indirectly from desert sources and as a result of their contacts were in a good position to understand the physical characteristics and subtle nuances in type and structure that differentiated the Saluki from other sighthounds.

A key member, the Hon. Florence Amherst, was one of the first to import and breed Salukis in England and was considered an authority of the breed. Much of the original 1923 standard can be seen as a condensed version of one that she had drafted years before and published in Cassell's "The New Book of the Dog" (1907).

At the time that the English standard was drafted, records and descriptions, verified with photographs clearly illustrate the wide variety of colors and patterns represented by Salukis and accepted by breed authorities during this period. These included; Cream (Amherstia Shahshah), cream/fawn (Zobeida el Zobair), gold (Ch. Zobeid), red (Sarona Kataf), red with white markings (Malik-el-Zobair), fawn (Sarona Nurnisha), black-and-tan (Sarona Kelb), black and white or black-white-tan (Seleughi) and various shades of grizzle (Binte el Nablous). Brindle was well recognized in other sighthounds, but no photographs of brindle patterned Salukis from this period are known to exist.

### **F. Locating the source of the brindle mutation**

Searching a pedigree to detect the presence and inheritance pattern of a gene such as the brindle mutation is not difficult, as long as certain criteria are met. These include:

- 1) Authentic 2-5 generation pedigrees
- 2) Access to records for littermates of sire, dam and offspring
- 3) Precise notation of colors used to identify dogs
- 4) Age of offspring when color was determined and/or registered
- 5) Photographs of living and deceased dogs or other evidence verifying color/pattern

### **G. Considerations**

Unfortunately, most pedigrees are incomplete, ambiguous, and occasionally illegitimate. Further complicating this process is the manner in which dogs have been identified or colors have been described. It is impossible in some cases, to determine only from the color entered in the record, what the actual color of a dog may have been. One can make an educated “guess” based on the inheritance patterns of certain colors and the color of their descendants, but this is not always fool proof and open to error. Such error can occur if admixture is introduced by crossing two different breeds together that do not carry the same color alleles. The newly introduced genes may have a “novel” effect on how certain colors are transmitted or expressed in the offspring and confound predictions.

Because many of the dogs that make up the original imports from the desert were registered simply as cream, golden, or red; it is impossible to know whether they were (e/e) creams or (a<sup>y</sup>) creams. As stated previously, the (e/e) genotype will mask all other color/pattern alleles, including black-and-tan and brindle. It is possible also, that certain bloodlines may have had a greater concentration of (e/e) individuals, especially in the late 1800s and early 1900s when dogs were isolated from other breeding groups or light colored dogs were specifically selected for by breeders. Assigning a genotype to cream is only possible after determining the potential genotypes of the parents and grandparents, followed by an examination of the offspring for the dog in question. Therefore, in most cases the genotype for cream dogs with unknown ancestry can not be accurately assigned.

In searching pedigrees and records, it is clear that certain dogs listed as black or black with white, were in fact black-and-tans, based on photographic evidence, such as visible “pips” over the eyes. Similarly, a few dogs listed as blue or silver grey were not solid grey (a form of black), but actually grey or silver grizzle, again based on photographic evidence illustrating a “widow’s peak” over the eyes in combination with a lighter base color. Though these inaccuracies may seem insignificant, each is responsible for a distinctly different genotype and mode of transmission.

The parti-color pattern may further complicate accurate color assessment, particularly in grizzle and black-and-tan parti colored dogs that are predominantly white with only small areas of color. This may have been a source of considerable confusion for some early breeders when they attempted to assign a color to them if high leg stockings, large white blazes or facial markings, which were common in some lines, obscured leg and facial patterns or the characteristic “widow’s peak.”

### **H. Identifying brindle**

There is no question that the brindle gene was present and recognized in the canine population at the time of the early imports into England. The English Greyhound for example, was a popular

breed during the same period and often displayed an accepted brindle pattern. As a dominant gene, brindle would have either passed from generation to generation, thereby remaining in the gene pool or “die out” and could not appear again without being re-introduced. This is precisely what happened to the Afghan Hound in England during the years surrounding WWII, when almost all dog breeding was curtailed and the brindle pattern became extinct. The pattern was not seen in England again until the 1960s, when it was reintroduced through imports from the United States.\*

If one parent is brindle, there is a 50-50 chance that the gene will be transmitted to a pup. Statistically, the gene will be passed to 50% of the resulting offspring, whether expressed in the phenotype or not. With a few exceptions, (Sarona Kelb, Hama of Homs), most dogs were used sparingly, so it is possible that a brindle parent might never produce a brindle offspring, especially if a litter was small or pups didn’t survive. One could postulate that a litter of 6 containing 3 or 4 brindle offspring would be equally possible, with any number of these “brindles,” who may be e/e cream or black (blue-grey), incapable of expressing the phenotype. In general, with at least one brindle parent, one would expect to see the trait represented with the expected frequency.

Records indicate only the occasional appearance of solid black salukis, so that among the early indigenous imports, if brindle dogs existed and left progeny, the e/e creams would have had the greatest chance of harboring the gene, and passing it “silently” to subsequent generations. However, once these silent carriers were introduced to a new population of dogs, such as fawn, black-and-tan or grizzle, hidden alleles—especially dominant alleles, such as brindle (or black), would be passed on in the ratio discussed above and expressed in a percentage of the affected offspring. Once exposed to these “new” alleles, the likelihood that the brindle gene could remain hidden for more than a few generations is remote. It is possible that some brindles who were faintly marked and not properly identified passed unnoticed, however the paucity of dogs verified as brindle that have appeared during the last 100 years does not support this assumption.

## **I. Pedigree research**

To determine whether the brindle mutation was present in these founding dogs and thereby accepted as legitimate, an attempt was made to determine the probability that a particular dog was truly a brindle as indicated and to locate any brindle progeny or descendants who may have originated from such a dog. To facilitate this process, the SCOA Brindle Pattern Research Team, examined KC and AKC stud books and records, pedigrees, journal articles, judge’s critiques, etc. to gather as much information as possible on individual dogs. In addition, eye witness descriptions and photographs were used to support or refute the accuracy of information collected, when possible.

Included here are the pedigrees of dogs registered as brindle in England and America, including two AKC registered dogs thought to be the only living examples of this pattern currently in the U.S. Where color/pattern is indicated, the color genotype will be given in an attempt to show the probability that the dog could have been brindle or to define the source and transmission of the brindle mutation. Where no genotype is given, it was impossible to ascertain, so left blank.

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\* *The Complete Afghan Hound*, Miller and Gilbert, 1975, 3<sup>rd</sup> ed. Pg. 58. Howell Book House, New York, N.Y.10019

**IV. Pedigrees of Registered Brindles**

IND: indigenous – country of origin

IMP: imported (not necessarily indigenous)

D: Dog

B: Bitch

**A. Amherstia Nazarat O'Redledge, Saluki, DOB: 5 Mar. 1929, B, Red brindle with****cream markings.** Breeder: Hon Florence Amherst, Owner(s): Exported to America to Mrs C B Hills, then Mr Edward K Aldrich

<i>Sire</i> Amherstia Nesiba (IMP-Iraq), Fawn (E/-), (a <sup>y</sup> /-), (ky/ky)	<i>Sire</i> Nesiba I (IND-Iraq)	<i>Sire</i>
	<i>Dam</i> Lady (IND-Iraq)	<i>Dam</i>
<i>Dam</i> Amherstia Shashah, Cream	<i>Sire</i> Eng Ch Zobeid, Gold	<i>Sire</i> Malik-el Zobair (IMP-Iraq), Red with white markings.
		<i>Dam</i> Zobeida-el-Zobair (IMP-Iraq), Cream
	<i>Dam</i> Amherstia Sharifah (IMP-Jordan) Cream	<i>Sire</i>
		<i>Dam</i>

**B. Zitoun, Saluki, DOB: 22 Jun. 1927, D, Brindle** Bred by Miss G. Desborough.

<i>Sire</i> Nablous Hhakem	<i>Sire</i> Eng Ch Amherstia Dikhan, Cream	<i>Sire</i> Farhan
		<i>Dam</i> Amherstia Omara, Cream
	<i>Dam</i> Halawah (-/-), (-/a <sup>t</sup> ), (k <sup>y</sup> /k <sup>y</sup> ) Not brindle	<i>Sire</i> Yaffa, Fawn and White (E/-), (a <sup>y</sup> /-), (k <sup>y</sup> /k <sup>y</sup> )
<i>Dam</i> Nablous Kuwaiyas Ketir (-/-), (a <sup>t</sup> /a <sup>t</sup> ), (k <sup>y</sup> /k <sup>y</sup> ) ***Self cream (e/e), Grizzle or B&T- not brindle	<i>Sire</i> Eng Ch Sarona Kelb (IMP-Syria), Black and tan (E/-), (a <sup>t</sup> /a <sup>t</sup> ), (k <sup>y</sup> /k <sup>y</sup> )	<i>Dam</i> Binte el Nablous (IMP-Syria), Deer Grizzle (E <sup>G</sup> /-), (a <sup>t</sup> /a <sup>t</sup> ), (k <sup>y</sup> /k <sup>y</sup> )
		<i>Sire</i> Seleughi (ND-Syria), Black, Tan and White (E/-), (a <sup>t</sup> /a <sup>t</sup> ), (k <sup>y</sup> /k <sup>y</sup> )
		<i>Dam</i> Baalbek (IND-Syria), Grizzle (E <sup>G</sup> /-), (a <sup>t</sup> /a <sup>t</sup> ), (k <sup>y</sup> /k <sup>y</sup> )
	<i>Dam</i> Binte el Nablous (IMP-Syria), Deer Grizzle (E <sup>G</sup> /-), (a <sup>t</sup> /a <sup>t</sup> ), (k <sup>y</sup> /k <sup>y</sup> )	<i>Sire</i> Jack of Jerusalem (IMP-Palestine)
		<i>Dam</i> Sheila of Amman (IMP Jordan)

**C. Amherstia ibn Darak, Saluki, DOB: 08 Nov. 1934, D, Grey Brindle** Bred by Mr L Redmore and Mr G Gadsdon, Owned by Hon Florence Amherst

<i>Sire</i> Amherstia Shamardal - Golden	<i>Sire</i> Eng Ch Zobeid - Gold	<i>Sire</i> Malik-el-Zobair (IMP Iraq) - Red with white markings
		<i>Dam</i> Zobeida-el-Zobair (IMP Iraq) - Cream
	<i>Dam</i> Amherstia Sharifah (IMP-Jordan) - Cream	<i>Sire</i> Desert
		<i>Dam</i> Desert
<i>Dam</i> Tess	<i>Sire</i> Semil Surif	<i>Sire</i> Midian of Grevel-fawn & white (E/-), (k^y/-), (k^y/k^y)
		<i>Dam</i> Abu Kaff (IMP-?)
	<i>Dam</i> Semil Sheriah	<i>Sire</i> Barlu- black (E/-), (-/a^t), (K^B/-)
		<i>Dam</i> Sama

**D. Tanoomah. Saluki, DOB: 29 Jun. 1936, B, AKC# 872723, Brindle**, Breeder: B Taylor

<i>Sire</i> Redledge Armari, Red	<i>Sire</i> Redledge Abu Ben Adam, Red, White, Fawn (E/-), (a^y/a^t), (k^y/k^y)	<i>Sire</i> Sarona Kataf (of Redledge) (IMP-UK), Red
		<i>Dam</i> Sarona Nadir (IMP-UK), Black ***likely black-and-tan
	<i>Dam</i> Amherstia Natisha O'Redledge (IMP-UK), Red	<i>Sire</i> Amherstia Nesiba (IMP-Iraq), fawn
<i>Dam</i> Amherstia Nazarat O'Redledge (IMP-UK), Red brindle, with cream markings. (E/-), (a^y/-), (k^br/k^y) or (E/-), (a^y/-), (k^y/k^y) or (E^G/-), (a^t/a^t), (k^y/k^y)	<i>Sire</i> Amherstia Nesiba (IMP-Iraq), Fawn (E/-), (a^y/-), (k^y/k^y)	<i>Dam</i> Amherstia Shahshah, cream
		<i>Sire</i> Nesiba 1 (IND-Iraq)
	<i>Dam</i> Amherstia Shashah, Cream	<i>Dam</i> Lady (IND-Iraq)
		<i>Sire</i> Eng Ch Zobeid, Gold
		<i>Dam</i> Amherstia Sharifah (IMP-Jordan), Cream

**E. Hakim, Saluki, DOB: 11 Apr. 1935, D, Black brindle fawn and white** Breeder: Mrs C Franklin

<i>Sire</i> Eng Ch Sarona Gulshere - Black grizzle (E^G/-), (a^t/a^t), (k^y/k^y)	<i>Sire</i> Eng Ch Sarona Kelb (IND/IMP-Syria) - Black and Tan (E/-), (a^t/a^t), (k^y/k^y)	<i>Sire</i> Seleughi (IND-Syria)- Black and white parti (E/-), (a^t/a^t), (k^y/k^y)
	<i>Dam</i> Sarona Nessa – Grizzle (E^G/-), (a^t/a^t), (k^y/k^y)	<i>Dam</i> Baalbek (IND-Syria) – Grizzle (E^G/-), (a^t/a^t), (k^y/k^y)
	<i>Sire</i> Ameer	<i>Sire</i> Eng Ch Amherstia Dikhan - Cream
	<i>Dam</i> Aloui of Homs	<i>Dam</i> Sarona Nada - Cream
<i>Dam</i> Hamra		<i>Sire</i> Salem (IMP-Iraq)
		<i>Sire</i> Raliba
		<i>Dam</i> Houri of Homs



**F. King Necho, Saluki, DOB: 11 May 1938, D, AKC #409017, Brindle** Breeder: Mrs Evelyn Southwick (King Necho-Littermates: Queen Amytis (black and cream) and Hophra (brown grizzle).

<p><i>Sire</i> Arod - Red with white trimming (E/-), (k^y/a^t), (k^y/k^y)</p>	<p><i>Sire</i> Sheik of Ro Akbar - Red with white markings (red grizzle)* (E^G/-), (a^t/a^t), (k^y/k^y)</p>	<p><i>Sire</i> Gola of Grevel (IMP-UK) - Tan</p>
	<p><i>Dam</i> Malikah al Bararey Jibal - White and Brown Parti (E/-), (a^y/a^t), (k^y/k^y)</p>	<p><i>Dam</i> Luella of Grevel (IMP-UK) (of Ruritania) - Cream</p>
		<p><i>Sire</i> Ch Sheik of Ro Akbar - Red with White Markings (red grizzle)* (E^G/-), (a^t/a^t), (k^y/k^y)</p>
		<p><i>Dam</i> Zillah of Sarona - Mahogany with black and white markings (E/-), (a^y/a^t), (k^y/k^y)</p>
<p><i>Dam</i> Deborah - Black and Tan (E/-), (a^t/a^t), (k^y/k^y)</p>	<p><i>Sire</i> Armon - Red with white trimming (E/-), (a^y/a^t), (k^y/k^y)</p>	<p><i>Sire</i> Sheik of Ro Akbar - Red with white markings (red grizzle)* (E^G/-), (a^t/a^t), (k^y/k^y)</p>
		<p><i>Dam</i> Suki of Grevel- Fawn (E/-), (a^y/-), (k^y/k^y)</p>
	<p><i>Dam</i> Hibral al Bararey Jibal - Grizzle with white markings (E^G/-), (a^t/a^t), (k^y/k^y)</p>	<p><i>Sire</i> Sheik of Ro Akbar - Red with white markings (red grizzle)* (E^G/-), (a^t/a^t), (k^y/k^y)</p>
		<p><i>Dam</i> Zillah of Sarona - Mahogany with black and white markings (E/-), (a^y/a^t), (k^y/k^y)</p>

\*Photographic evidence as red grizzle (pg. 439) --In *The Saluki-Coursing hound of the East*, ed. Gail Goodman.

**G. & H. Cavama - B, White w/brindle markings & Kasim Baba- D, Brindle, Saluki, DOB: 25 Jan. 1939** Breeder: Mrs. E. Emburey

<i>Sire</i> Spindthrift of Lynne (E <sup>G</sup> /-), (a <sup>t</sup> /a <sup>t</sup> ), (k <sup>y</sup> /k <sup>y</sup> ) grizzle	<i>Sire</i> Sarona Gulshere - Black Grizzle (E/-), (a <sup>t</sup> /a <sup>t</sup> ), (k <sup>y</sup> /k <sup>y</sup> )	<i>Sire</i> Eng Ch Sarona Kelb (IND/IMP-Syria) - Black and Tan (E/-), (a <sup>t</sup> /a <sup>t</sup> ), (k <sup>y</sup> /k <sup>y</sup> )
		<i>Dam</i> Sarona Nessa – Grizzle (E/-), (a <sup>t</sup> /a <sup>t</sup> ), (k <sup>y</sup> /k <sup>y</sup> )
	<i>Dam</i> Sarona Cheetah – Fawn (E/-), (a <sup>y</sup> /-), (k <sup>y</sup> /k <sup>y</sup> )	<i>Sire</i> Duststorm of Wilbury - Cream
		<i>Dam</i> Sarona Chinkara
<i>Dam</i> Mazuri Arabella – Grizzle (E/-), (a <sup>t</sup> /a <sup>t</sup> ), (k <sup>y</sup> /k <sup>y</sup> )	<i>Sire</i> Zebedee el Kizel – Red (E <sup>G</sup> /-), (a <sup>y</sup> /a <sup>t</sup> ), (k <sup>y</sup> /k <sup>y</sup> )	<i>Sire</i> Ali Baba of Iraq - Cream
		<i>Dam</i> Aziza
	<i>Dam</i> Sheba Mazuri - Black and Cream (E/-), (a <sup>t</sup> /a <sup>t</sup> ), (k <sup>y</sup> /k <sup>y</sup> )	<i>Sire</i> Amherstia Dikhan - Cream
		<i>Dam</i> Cis of Ayot

Genotype: (E/-), (a<sup>t</sup>/a<sup>t</sup>), (k<sup>y</sup>/k<sup>y</sup>)

Could only have been grizzle, black-and-tan or e/e cream, not brindle.

**I. Ch. Zuri Zukieh of Pine Paddocks, Saluki: DOB 19 April 1965, B** Bronze Brindle - as stated by Mrs. Esther Bliss Knapp in her 1967 *AKC Gazette* Article (see **Section 2. II. C**).<sup>\*</sup> Breeder: Mrs. Esther Bliss Knapp

<b>Sire</b> Mazuri Ghani (IMP-UK) (Chocolate and tan) (E/-), (a <sup>t</sup> /a <sup>t</sup> ), (k <sup>y</sup> /k <sup>y</sup> ), (b/b)	<b>Sire</b> Mazuri Kiraben (Black and white parti) *tri parti (E/-), (a <sup>t</sup> /a <sup>t</sup> ), (k <sup>y</sup> /k <sup>y</sup> )(B/b)	<b>Sire</b> Mazuri Bedouin (Black and tan) (E/-), (a <sup>t</sup> /a <sup>t</sup> ), (k <sup>y</sup> /k <sup>y</sup> )
		<b>Dam</b> Zomahli Zandia (-/-), (-/a <sup>t</sup> ), (k <sup>y</sup> /-)
	<b>Dam</b> Mazuri Knighttellington Vanity (Cream) (b/-)	<b>Sire</b> Eng Ch Sakkara Sindebad of Shammar (Cream)
		<b>Dam</b> Knighttellington Victory (Gold)
<b>Dam</b> Mazuri Feriel (IMP-UK) (Chocolate) (E/-), (a <sup>t</sup> /a <sup>t</sup> ), (k <sup>y</sup> /k <sup>y</sup> ), (b/b)	<b>Sire</b> Mazuri Zedekiah (Black and Tan) (E/-), (a <sup>t</sup> /a <sup>t</sup> ), (k <sup>y</sup> /k <sup>y</sup> ), (B/b)	<b>Sire</b> Mazuri Kiraben (Black and white parti) (E/-), (a <sup>t</sup> /a <sup>t</sup> ), (k <sup>y</sup> /k <sup>y</sup> )
		<b>Dam</b> Mazuri Knighttellington Vanity (Cream) (b/-)
	<b>Dam</b> Mazuri Vianna (b/-)	<b>Sire</b> Eng Ch Mihjan Kodama (Grizzle) (E <sup>G</sup> /-), (a <sup>t</sup> /a <sup>t</sup> ), (k <sup>y</sup> /k <sup>y</sup> )
		<b>Dam</b> Mazuri Knighttellington Vanity (Cream) (b/-)

Genotype: (E/-), (a<sup>t</sup>/a<sup>t</sup>), (k<sup>y</sup>/k<sup>y</sup>)

Zuri Zukieh of Pine Paddocks: Genotype consistent with chocolate and tan, chocolate grizzle or e/e cream with liver pigment, NOT brindle. This combination could not produce brindle or any other combination of colors that would include black. Two chocolates, (which carry two copies of the “b” recessive allele) can produce only the offspring stated above, because black hairs can not be produced anywhere on the body.

There is no explanation that reconciles the deduced genotype with the detailed description given by Esther Bliss Knapp.

<sup>\*</sup>No record of her registration or championship certificate could be verified by a call to the AKC, yet *ASA Caravanserai: AKC Champions 1927-1977* lists Zuri Zukieh as a champion as does Esther Bliss Knapp in her Dec. 1967 *AKC Gazette* column.

Ch. Mazuri Ferah of PP (below) was registered as chocolate and white, consistent with the genotype shown above. Mrs. Knapp’s description lists Zuri as being one of a litter of 5 (3 bitches, 2 dogs) with only 4 shown below. No further documentation could be located regarding this litter and it should be noted that there is no evidence of the litter's registration – apart from Ferah in June 1966.

Personal correspondence between Carol-Ann Lantz and Casey Gonda on 2/11/11 gives this information from Esther Bliss Knapp’s pedigree notes:

“Mazuri Daran of PP Color -Fawn” [‘I presume he was male’ – CAL’s comment]

“Mazuri Ferah of Pine Paddocks Color dark red”

“Zuri Zukieh of PP. Color - br gr” [‘Brown Grizzle???’ – CAL’s comment]

“Zuri Adiba of PP Color - Fawn”

And again from Carol-Ann Lantz on 2/12/11, “The colors listed for Zuri Zukieh's litter are just as Esther wrote them on her list of litters back in the 60's. I guess the ‘br gr’ after Zuri's name was brown grizzle and became chocolate. Saluki puppies can have color changes as they grow. This was probably her first litter that included chocolate. I have never seen a picture of this bitch.”

## J. Emir El Tigre of Pine Paddocks, Saluki: DOB 1 Oct. 1968, D, Fawn brindle

Owner/breeder Mrs. Esther Bliss Knapp

<p><i>Sire</i> Fajar Farouk of Pine Paddocks (Silver grizzle)</p>	<p><i>Sire</i> Am Ch Pine Paddocks Marduk el Farouk (Grizzle and white) (E^G/-), (a^t/a^t), (k^y/k^y)</p>	<p><i>Sire</i> Can Ch Pine Paddocks Farouk El Saraje (Black tan and white) (E/-), (a^t/a^t), (k^y/k^y)</p>
		<p><i>Dam</i> Am Ch Omara Farouk of Pine Paddocks (Cream) (E^G/-), (-/a^t), (k^y/k^y)</p>
<p>(E^G/-), (a^t/a^t), (k^y/k^y), (B/b)</p>	<p><i>Dam</i> Am Ch Mazuri Ferah of Pine Paddocks (Chocolate and white) (E/-), (a^t/a^t), (k^y/k^y), (b/b)</p>	<p><i>Sire</i> Mazuri Ghani (Chocolate) (E/-), (a^t/a^t), (k^y/k^y), (b/b)</p>
		<p><i>Dam</i> Mazuri Feriel (Chocolate) (E/-), (a^t/a^t), (k^y/k^y), (b/b)</p>
<p><i>Dam</i> Mazuri Catana (IMP-UK) (sm), (Red and white)</p>	<p><i>Sire</i> Mazuri Alib-Ahmed (black fringe red) (E/-), (a^y/a^t), (k^y/k^y)</p>	<p><i>Sire</i> Mazuri Kiraben (Black and white parti) (E/-), (a^t/a^t), (k^y/k^y)</p>
		<p><i>Dam</i> Mazuri Knighttellington Vanity (Cream) (b/-)</p>
	<p><i>Dam</i> Mazuri Jael (sm) (Red)</p>	<p><i>Sire</i> Eng Ch Mazuri Knighttellington Vandal (Gold)</p>
		<p><i>Dam</i> Mazuri Junis (sm) (Sabled Red)  (E/-), (a^y/-), (k^y/k^y)</p>

No record of Emir el Tigre’s AKC registration could be verified by available AKC documentation, yet personal correspondence between Carol-Ann Lantz and Casey Gonda on 2/11/11 gives it as HB 234784.

**K. Am Ch & Am Gr Ch Baghdad Be Still My Heart, Saluki, DOB: 10 Oct. 2008, B, Fawn brindle** Breeder: Paula Bockman Chato, Owner: Lyndell Ackerman

<p><i>Sire</i> Aust CH Hadiyyah Samir of Gorewater -<b>brindle</b> (E<sup>G</sup>/e), (a<sup>y</sup>/a<sup>t</sup>), (K<sup>br</sup>/k<sup>y</sup>)</p> <p>† verified</p>	<p><i>Sire</i> MBIS Eng CH Mabrooka Jayid – cream (E<sup>G</sup>/-) (a<sup>y</sup>/-), (k<sup>br</sup>/k<sup>y</sup>)</p>	<p><i>Sire</i> CH Baghdad Foreign Affair of Lokhandar - cream</p>
	<p><i>Dam</i> Simply Fizzy (e/e), (a<sup>y</sup>/a<sup>t</sup>), (k<sup>y</sup>/k<sup>y</sup>)</p> <p>† verified</p>	<p><i>Dam</i> Eng CH Mabrooka Miraya - sabled red (E/-), (k<sup>y</sup>/-), (k<sup>y</sup>/k<sup>y</sup>)</p>
<p><i>Dam</i> BIS, BISS Aust Ch Taejaan Erin Brokovitch – tri (E/-), (a<sup>t</sup>/a<sup>t</sup>), (k<sup>y</sup>/k<sup>y</sup>)</p>	<p><i>Sire</i> Aust CH Qirmizi Emerald – red (-/-), (a<sup>t</sup>/-), (k<sup>y</sup>/k<sup>y</sup>)</p>	<p><i>Sire</i> Am Swe Nor CH Wisdom's Totally Awsome Atom – red</p>
		<p><i>Dam</i> Int Nord Fin CH Qirmizi Casablanca - gold</p>
	<p><i>Dam</i> CH Kiabe Shahira</p>	<p><i>Sire</i> Aust CH Kiabe Baskhan - gold</p>
		<p><i>Dam</i> CH Kiabe Aziyat - sabled fawn (E/-), (k<sup>y</sup>/-), (k<sup>y</sup>/k<sup>y</sup>)</p>

Genotype: (E/-), (a<sup>y</sup>/a<sup>t</sup>), (k<sup>br</sup>/k<sup>y</sup>)

The color/pattern is compatible with the genotype given for sire and dam. The brindle mutation follows a dominant mode of inheritance. As is the case above, at least one brindle parent is necessary to pass the mutation directly to offspring. Exceptions to this rule (pedigree “L”) have been discussed previously (e/e creams or solid black (K<sup>B</sup>) may “hide” the phenotype, but will pass the genotype in same manner as illustrated above.

## L. Tirgan von Iransamin, Saluki, DOB: 30 Dec. 2006, B., black masked red brindle

Breeder: Cyrus Sattarzadeh, Owner: Mary Beth Halsey Rogers

<p><i>Sire</i> Ch Persian el Mahbub - sabled fawn, <b>mask</b> (E^M/-), (a^y/a^t), (k^y/k^y)</p>	<p><i>Sire</i> Hadban-Shah el Mahbub - sabled fawn, <b>mask</b> (E^M/-), (k^y/-), (k^y/k^y)</p>	<p><i>Sire</i> Ch Khayif Charrit Bey - sabled red (E/-), (k^y/-), (k^y/k^y)</p>
	<p><i>Dam</i> Ch Erdowan el Mahbub - fawn, <b>mask</b> (E^M/-), (k^y/-), (k^y/k^y)</p>	<p><i>Dam</i> Ch El-Ubaid's Barnabas - cream grizzle E^G/-, (a^t/a^t), (k^y/k^y)</p>
	<p><i>Dam</i> Ch Mohga el Mahbub - black and tan (E/-), (a^t/a^t), (k^y/k^y)</p>	<p><i>Dam</i> Falouma el Mahbub - black and tan (E/-), (a^t/a^t), (k^y/k^y)</p>
	<p><i>Sire</i> Qeysar von Iransamin - <b>brindle</b> parti (E/e), (-/a^t), (k^br/k^y)</p>	<p><i>Sire</i> Derafsch (IMP-Iran) - <b>brindle</b> tri (E/-), (a^t/a^t), (k^br/k^y)</p>
<p><i>Dam</i> Roshan von Iransamin – cream (e/e), (<b>k^br</b>/k^y) <b>Brindle</b> mutation present, but hidden by phenotype</p>	<p><i>Dam</i> Sedef (IMP-Iran) - Cream</p>	<p><i>Dam</i> Latschin az Maamasch (IMP Turkey) - sabled fawn ‡</p>
	<p><i>Dam</i> Persya von Iransamin - sabled fawn, mask ‡ (E^M/e)</p>	<p><i>Dam</i> Osjan von Iransamin - black and grey, mask ‡ (E^M/-)</p>

Genotype: (E^M/e), (a^y/-), (k^br/k^y)

Pedigree is compatible with the transmission of two dominant genes. The black mask present in Tirgan has been passed directly from her sire. The brindle mutation, also present in the phenotype has been passed directly from her dam, but her e/e genotype is “hiding” the brindle pattern.

‡ Photographs of these dogs illustrate atypical colors, likely associated with solid black (K^B) or blue. The mechanism responsible for sabled blue/fawns has not been characterized.

### See Appendix H for Articles on Color Genetics:

1. a. “Genetics of Coat Color and Type in Dogs” and 1.b. “Saluki Coat Color DNA Study” (links to studies)
2. “Early Canid Domestication: The Farm-Fox Experiment” (excerpt & link to article)
3. “Finding the Gene for Brindle”, (excerpt & link to article)
4. “Coat Color in Salukis – What’s All the Fuss?”
5. “Linkage and Segregation Analysis of Black and Brindle Coat Color in Domestic Dogs” (abstract & link to article)

## **V. Cross-breeds in the United Kingdom and America**

The on-going occurrences of cross-bred Salukis in the United Kingdom, the United States, and the Middle East is a very real cause for concern for those who import Salukis, or breed to imported or performance-breeder stock.

In 1911, members of the Greyhound coursing fancy in the UK tried to increase stamina and determination, and toughen feet via experimental crosses with Afghan hounds and these crosses were admitted to the studbook.<sup>42</sup> Despite difficult financial circumstances, Florence Amherst, the only breeder of Salukis in England at that time, refused to allow her Salukis to crossbreed with Greyhounds and remained a staunch advocate for purity of the individual breeds.

Brigadier General Lance noting comments about Greyhounds lacking stamina, expressed the belief that the “Persian hound” bred to a Greyhound was in reality an Afghan and therefore a Greyhound/Saluki improvement cross had never been tried. In a newspaper letter to the editor of *The Morning Post* in 1923, Lance publicly offered proven, imported, Saluki hunters (Sarona Kelb from Syria and Sarona Kataf from Iraq) at experimental stud to Greyhound bitches meeting his approval.<sup>43</sup> No documentation has been found that confirms that Saronas were crossbred with Greyhounds.

Crossbreeds were also known in the Middle East and used to hunt gazelle, deer, hare, fox, and jackal. In India, British officers crossed Greyhounds with the local Rampur hounds but these proved unsatisfactory for coursing although one Saluki/Rampur cross was known as a good courser. Officers in the post WWI occupied Middle East, kept packs of Salukis, and imported packs of Foxhounds, Greyhounds, and lurchers. Mixed or “bobbery” hunt packs included sighthounds, terriers, pointers, crosses, and pi-dogs. Accidental matings happened. Mr. H. L. Powell who had traveled extensively in the Middle East, was an authority on Salukis. Unaware of the 1923 Standard, he developed his own remarkably similar, breed standard. He would note in correspondence about Saluki crosses that “A shorter tail usually indicated greyhound blood.”<sup>44</sup>

Apart from accidental matings, which produce crossbreeds of all kinds of dogs in all countries, it is acknowledged that the UK has a unique and on-going problem due to lurcher breeders and the large population of itinerants generally referred to as Gypsies or Tinkers who poach for food or income. The tradition for lurchers stretches back hundreds of years to Norman times when only nobility were allowed to own purebred hunting hounds and costly or harsh penalties were inflicted on dogs and their owners caught poaching or in proximity to the King’s forest.\* Personal preference on the part of lurcher breeders and local terrain and game, lead to multi-breed “cocktails” to achieve the right size, intellect, obedience, and coat type. Typically only a certain percentage of Saluki is wanted. Typically, a couple of generations are required to achieve their ideal percentages of Greyhound, Deerhound, Saluki, Border Collie, etc. Purebred dogs may be stolen for breeding purposes or purebred males are clandestinely enticed to service lurcher bitches in season. Saluki crosses or partial crosses may be difficult to identify based on conformation and pedigrees may be falsified in order to sell a “purebred Saluki.”

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\* Dogs of a size that could bring down a deer were only allowed to commoners if one or more toes were cut off a front foot or a knee tendon cut to prevent it being able to gallop.

Crossbreeding for lurchers is a decades old problem for the purebred dog community. Robert Leighton mentions ancient dogs resembling “our lurchers” in *The New Book of the Dog* (1907). The Saluki or Gazelle Hound Club has been active since at least 1969 in attempting to mitigate this problem as may be seen from the editorial in *The Saluki* Autumn/Christmas 1974 where editor

C. June Applebee writes,

“Accidental cross-breeding is always a possibility; provided the owners are honest no harm will come. However one case of deliberate crossbreeding came to court after the progeny, by means of a false pedigree, had been registered with the Kennel Club. The matter of lurcher breeding is still with us. And other problems will undoubtedly arise from time to time originating from greed for money or power or both.”

An article in the same magazine discusses the “vexing subject of lurcher breeding.” Lurchers are frequently discussed in British dog books from the turn of the century onwards and have become a permanent part of the culture with their own specialized literature, social networks, websites, organizations, shows, and racing.\*

While America does not have Gypsy/lurcher problem it is far from free of instances of deliberate crossbreeding of Salukis to create lurchers – but on a much smaller scale than that of the UK. In the West, there are performance breeders who cross Salukis with other sighthounds for better performance in hunting hare, fox, coyote, and even deer. Also, there is ample evidence of individuals in the sled dog community that crossbreed their harness dogs with Salukis to add speed to their teams. Finally, there have even been crosses in the name scientific research. Constance Miller in *Gazehounds: The Search for Truth* briefly describes a morphology experiment by Cornell University’s Dr. Charles Stockard where Saluki/Basset Hound and Saluki/Pekingese hybrids were bred in the late 1920s to study the inheritance of dwarfism.<sup>45</sup>

## VI. Research Question #2 Summary

Available records and photographs from 1960 to present show that a few brindle Salukis and Salukis said to be brindle have appeared periodically – although pedigree information can be incomplete or contradictory. There is no evidence that any of the Salukis registered or described as brindles prior to 1939 had progeny that can be traced down to dogs from the 1960s or the present day. If there were objections to brindle as a color during this period on the part of experts, the SCOA or the AKC, none have surfaced. Current DNA studies and analysis of tested dogs allows precise identification of coat color genotypes and closer tracking of gene inheritance patterns, unexpressed genotypes and rare mutations.

The advent of modern transportation and communication technologies in the Westernized Middle East enables global Saluki commerce in a much freer fashion than was ever possible when the 1923 Standard was created. This has allowed more potential for crossbreeding with lurchers, greyhounds, and other Middle Eastern sighthounds. Performance breeders in the UK, USA, and Middle East continue to produce Saluki crosses (who may not be identified as such) thereby causing a potential problem for buyers or importers.

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\* For example: *All About the Lurcher* (1983) – one of the Pelham Books’ series on dog breeds, *Lurchers Across the World* on Facebook, and The Sussex Longdog Association.



## **VII. Appendices**

### **Appendix A: Brindle Pattern Research Team Charge**

October 14, 2010

For the benefit of the Saluki Club of America's Members and the breed in the United States, the Brindle Pattern Research Team is constituted and charged to examine the question of brindle as an authentic and legitimate pattern in the Saluki breed by specifically researching the following two questions:

#1 Was the pattern brindle acknowledged and accepted by Saluki authorities in the time of the 1923 English and 1927 American Standards?

#2 Does the evidence currently available, including DNA color and pedigree analysis; establish the brindle pattern as native to the purebred Saluki?

The BPRT will examine historical and genetic documentation and prepare an evidence-based report with full disclosure (citations and references) to the Membership and Board no later than January 2011, so that Members can make an informed decision as to whether or not any action should be taken, or the breed standard changed in any way.

To achieve this purpose we, the members of the BPRT, agree to:

- Be open-minded and impartial.
- Work together in a collegial manner.
- Apply scholarly methodology to our work.
- Consider any new evidence presented to the Research Team that meets our minimum criteria for authenticity and provenance.
- Keep our opinions, research, deliberations, and work confidential until the publication of the report.
- From the adoption of this charge, to abstain from posting to list-serves, private lists, web sites, or publications on this topic until the report is published. The Chair reserves the right to post updates, requests for information, etc., as deemed appropriate.

Brian Duggan, M.A. (chair)  
Dr. Casey Gonda  
Lin Hawkyard

## Appendix B: Submitted Document Matrix

Doc #	Title	Criteria #1 Met?	Criteria #2 Met?	Comment	Relevant?	BD: Acceptable?	CG: Acceptable?	LH: Acceptable?
<b>Independent submissions</b>								
1	Carol-Ann Lantz: statement on Amherstia Nazarat 10/8/10	Yes		Eyewitness	Yes	Yes	Yes	Yes
2	Sir Terence Clark: "Brindle in Salukis from Country of Origin" <i>SPDBS Newsletter</i> , 11/6/10	Yes		Eyewitness	Yes	Yes	Yes	Yes
<b>M. Labrace Brown: The Saluki articles - 11/14/10</b>								
3	Sue Rooney Flynn "To Brindle or Not to Brindle?"	Somewhat	No	Opinion based on post-1929 AKC Standards	No	No	No	No
4	Sue Ann Pietros "Saluki History Redux"	No	No	Opinion - but does reference primary docs already known to BPRT	No	No	No	No
5	Karen Fisher "Gypsies, Dogs and Thieves"	No	No	Commentary on current problems with Gypsies	No	No	No	No
6	Ann Shimmin "Background to the Appearance of Brindle..."	No	No	Commentary with no documentation	No	No	No	No
7	Marilyn Labrace Brown "The Saluki - the Perfect Ingredient"	No	No	Commentary	No	No	No	No
8	Marilyn Labrace Brown "Playing with Fire"	No	No	Opinion & commentary	No	No	No	No
9	Montrue Stoner-Townsend "Desert Bred Saluki Registry in America"	No	No	Commentary on current registry	No	No	No	No
10	Karen Fisher "Enquiries with COO Experts, Breeders & Owners"	No	No	Opinion survey	No	No	No	No
11	Casey Gonda, DVM, "Coat Color in Salukis"		Yes	Cites published genetic studies	Yes	Yes	Yes	Yes
<b>Bernie Betlach: documents submitted on CD 11/24/10</b>								
12	"Amy of Egypt," photo caption in email from Sir Terence Clark	No	No	Re-states #13	No	No	No	No
13	"Amy of Egypt," photo & caption <i>The Saluki</i> , Autumn 1987	Yes		Eyewitness & photograph	Yes	Yes	No	Yes
14	"Amy of Egypt," photo only	Yes		Photograph - same as #13	No	No	No	No
15	Daphne Parnham, "Colors Through the Years," <i>Saluki Heritage</i> , 1991	No	No	Refers to primary docs already known	No	No	No	No
16	Kerns, et al, "Linkage and Segregation Analysis of Black and Brindle Coat Color in Domestic Dogs"		Yes	Published genetic study	Yes	Yes	Yes	Yes
17	Nazarat & El Tigre email	No	No	Opinion	No	No	No	No
18	Ludmilla N. Trut, "Early Canid Domestication: The Farm-Fox Experiment"		Yes	Published study on mutation	Yes	Yes	No	Yes
19	Dr. Bruce Cattanach, "Finding the Gene for Brindle"		Yes	Published genetic study	Yes	Yes	Yes	Yes
20	Excerpt from Parnham's 1991 <i>Saluki Heritage</i> article (#14)	No	No	duplicate of #14	No	No	No	No
21	"Historical Realities" - email discussion string with various references	No	No	Refers to primary docs & genetic studies already known	No	No	No	No
22	Saluki Article by Florence Amherst in Hutchinson, 1935	Yes		Primary document	Yes	Yes	Yes	Yes
23	Joe Pendry's email on Brindle Sighting in Arabia	Yes		Eyewitness	Yes	Yes	No	Yes
24	Elaine A. Ostrander, "Genetics and the Shape of Dogs"		Yes	Published genetic study	No	No		No
25	Brindle photo from Hutchinson, 1935	Yes		Period photograph - duplicated in #22	No	No	No	No
26	Brindle photo from Hutchinson, 1935	Yes		Period photo - from #22	No	No	No	No
27	Pine Paddocks Advertisement, <i>SCOA Newsletter</i> , Oct. 1976	Yes		Period photograph	Yes	Yes	Yes	Yes
28	Esther Bliss Knapp article excerpt, <i>Saluki World</i> Fall 1969	Yes	No	Refers to 1969 EBK document	Yes	Yes	Yes	Yes
29	Dr. Sheila Schmutz, "Genetics of Coat Color and Type in Dogs" - specifically the K Locus (brindle) section.		Yes	Published genetic study	Yes	Yes	Yes	Yes
30	Dr. Sheila Schmutz, "Saluki Coat Color DNA Study"		Yes	Published genetic study	Yes	Yes	Yes	Yes
31	Linda Scanlon, "Judging the Saluki by the AKC Standard" 9/2010	No	No	Opinion	No	No	No	No
32	Sir Terence Clark's statement at SGHC Annual General Meeting March 2010	Yes		Eyewitness	Yes	Yes	No	Yes
<b>Independent submissions</b>								
33	Carol-Ann Lantz: Walter Browne's Saluki History ms. 11/28/10	Yes		Eyewitness	Yes	Yes	Yes	Yes
34	Peter Yardley: SGHC Statement on Brindle 11/30/10	No	No	Commentary	No	No	No	No
35	Sue Rooney Flynn: "Arabian Saluki Brindle" (with scans of dog book pages) 12/1/10	Yes (somewhat)		Opinion based on post-1927 USA definitions	No	No	No	No
<b>BPRT Stated Criteria for Consideration (10/15/10)</b>								
#1 Photocopies, scans, or faxes of primary or secondary documents* with provenance, e.g., photographs, eye-witness accounts, letters, articles, columns, and the like, identified with bibliographic information to include the publication source, author, date, and page number.		#2 Published (print or web) papers on coat color/pattern genetic studies regarding genotype and phenotype, identified by journal name, author, article title, issue/volume, date, and page numbers or web address).			Note: Documentation is not: hearsay, 2nd or 3rd hand accounts, quotes and excerpts that are undated, un-attributed, out of context, or partial, opinion-, surveys, and artistic (non-photographic) representations.			

## Appendix C: Arab Saluki Standards

### **Florence Amherst in *Hutchinson's Dog Encyclopædia* (1935) pp 1554 & 1557**

This standard is by a Saluki breeder from a large Iraqi tribe and originally told to Mr. Kenneth R. Boulton who reproduced it in a newspaper article c1930 entitled "How the Arabs Judge Salukis" (*Saluki Heritage* Spring 1985, p 3).

"If only for the sake of comparison, it is interesting to read how the Arabs judge Salukis. The first thing the Arab always looks at is the chest: this must be deep and strong.

**Head.**— There should be two fingers' width across the top of the head between the ears. There should be plenty of loose skin in the cheek. Ears should be long and finely feathered.

**Forelegs.**— Elbows should be difficult to press together. Wrists should be small, and paws point forward at a small angle.

**Loins.**— should be very narrow. There should be a width of three or four fingers between the two hip bones on the top of the back; a deep hollow between these bones is thought very good.

**Back Legs.**— Hock must be very pronounced and the lower the better.

**Rear Paws.**— There should be a pronounced flatness here showing easy quick turning at speed.

**Tail.**— Feathering must be fine and regular. The tail when pulled down between the legs and round up the back should reach to the point between the hip bones.

**General.**— The main slope of the body should be from tail to shoulder, giving an impression of speed, the hindquarters being higher than the shoulders. An arched back is considered a sign of speed."

### **H.R.P. Dickson in *The Arab of the Desert* (1949) p 376**

As regards the points of a *salúqi*, the Badawin pays attention only to the following:

- (a) The snout or muzzle must be long and narrow – this for breed.
- (b) The girth at the chest must be deep, the deeper the better – this for staying power.
- (c) The girth at the waist must be fine – this for speed.
- (d) The hocks must be well let down – this also for speed.
- (e) The width between the tops of the thigh bones measured on the back must be good, i.e. at least the width of a hand including the thumb – this for speed.

For the rest, the dog with two hair warts under the chin is better than that with only one, and the one having three or four such hair warts is very good."

## **Appendix D: Diversity of Early Saluki Colors Registered by the KC and AKC**

(from the *British Book of Champions, Kennel Club Calendar & Studbook* and *American Kennel Club Studbook*)

### **1923 & 1927 Standard Colors:**

White  
Cream  
Fawn  
Golden  
Red  
Grizzle and tan  
Tricolour (white, black, and tan)  
Black and tan

### **British Saluki Colors 1923 - 1949**

Black & cream  
Black & fawn  
Black & pale fawn  
Black, grey and white  
Black, white chest  
Brindle with cream markings  
Brown and white  
Cream and white  
Creamy fawn  
Dark grizzle and fawn  
Deer colour  
Fawn grizzle  
Fawn grizzle and white  
Golden, white mark on neck  
Grey  
Grey brindle  
Grey or blue  
Grizzle  
Ivory and gold  
Lemon and white  
Light fawn  
Red and black  
Red and white  
Red and white, black feathered ears  
Red brindle  
Red grizzle, white markings  
Red with black points  
Red, cream shadings  
White and fawn  
White and Red  
White, black & fawn  
White, cream markings  
White, fawn markings  
White, silver & fawn markings

### **American Saluki Colors 1929 - 1937**

Beige  
Black  
Black and gazelle  
Black and grizzle  
Black and white  
Black, fawn, and gray  
Black, gazelle markings  
Black, tan and fawn markings  
Black, white markings  
Brindle  
Brown grizzle  
Brown grizzle, black markings  
Chestnut and white  
Cream and golden  
Cream, white markings  
Dark brown  
Dark fawn  
Dark grizzle  
Fawn and cream  
Fawn, white points  
Gold and cream  
Gold, white markings  
Golden and black  
Golden brown  
Golden, white front legs  
Grizzle  
Grizzle, fawn points  
Grizzle, white markings  
Grizzled  
Light brown  
Light fawn, white markings  
Light grizzle  
Light grizzle, white markings  
Light fawn, white markings  
Liver and tan  
Mahogany, black and white markings  
Red brindle, cream markings  
Red, black ear tips  
Red, fawn shadings  
Red, white trimmings  
Sable and white  
Tan  
Tan, black, and white  
White and brown  
White and chestnut  
White and tan  
White, brown spots  
White, buff markings  
White, cream markings  
White, red, black markings

## Appendix E: Lt. Commander David Waters, R.N. Letters Supporting Brindle as a Saluki Color

*The Saluki Crufts Issue Winter/Spring 1987*

### HOUNDS THROUGH THE LETTERBOX

Robin Hill,  
Bury, Nr. Pulborough,  
West Sussex.

After obtaining a copy of The Kennel Club's Revised (1986) Standard for Salukis I wrote on 17th August last to The Kennel Club the letter which follows, sending a copy of the Secretary and to the Committee members of The Saluki or Gazelle Hound Club. I wrote in my capacity of Honorary Vice-President of The Saluki or Gazelle Hound Club. You may like to include it in *The Saluki*, and also that the Secretary of The Kennel Club replied to me on 28 August: "I shall place your views before the appropriate Kennel Club Committee for their consideration."

Sir, SALUKI STANDARD - COLOUR

As a former member of the Kennel Club I must point out that in issuing the revised Saluki Standard The Kennel Club has been persuaded to ignore the indisputable fact that brindle is a colour still found in Salukis in their native lands today, notably Iraq and Iran - The geographical area of their origin several millenia ago, in Europe and America and until recently, as The Kennel Club Registers prove, in England.

Brindle was recognised by the Saluki Club founders, who included distinguished persons with knowledge of and experience of Salukis in Egypt and the Middle East, as characteristic of the breed, and by the Kennel Club in the 1920's and 30's when this colour occurred in this country.

Brindle has not recurred in Britain in recent years, but could well do so, not merely through importation but because, as attested by the American authority on genetics and coat colour in dogs, Constance Miller, the brindle factor exists genetically in Salukis, though it may die out in a particular strain, as has happened in this country over the past forty years (*Saluki Heritage* Issue No. 7, Autumn 1984, p.3).

Thus, at least two hounds of brindle colour were registered at the Kennel Club and shown successfully in the 1920's and 1930's: **AMHERSTIA NAZARAT**, Stud Book No.239MM, bred by the first President of the Saluki or Gazelle Hound Club, the Hon. Florence Amherst, an internationally acknowledged expert on the breed, was registered in 1929 as a red brindle with cream markings; the other brindle of which I have specific cognisance is **ZITOUN**, a red brindle dog, owned by Miss Desborough, which was judged and placed at the Saluki Club Members Show on 29th June, 1934, by the well-known breeder and importer of Salukis from the Middle East Miss H.I.H. Barr (Grevel Salukis).

Whilst these brindle hounds are known to have been registered as pure bred by acknowledged Saluki experts in England the approval of this colour in Salukis by distinguished Arab breeders also is substantiated by a photograph in *Hutchinson's Dog Encyclopaedia* (1935), p.1554, provided by the Hon. Florence Amherst, entitled: "Salukis in the Salida Desert with the Sheikh of the Tahawi tribe"; in the foreground is a conspicuous brindle. Brindle is also described as one of the variations of colour (p.1558).

In specifically excluding the colour brindle in the revised standard the Saluki Club Committee has ignored the above published facts; moreover, it did not consult the Members of the Club, some of whom have judged and placed brindle Salukis on the Continent, where the colour is unquestioned, nor myself as an Honorary Vice-President. I am also concerned because this put the breed at variance with the FCI and AKC.

Clearly, this arbitrarily revised standard contrary to long and well established facts is, in one word, unscientific. Do you not think that the exclusion of brindle should be reconsidered by The Kennel Club?

Yours truly,

D.W. Waters, Lt. Cmdr., R.N.  
FSA, RRHistS, FRINav.

The Secretary of The Saluki or Gazelle Hound Club wrote to me in response to my letter to The Kennel Club - "... as yet no new breed standard has been submitted to the Saluki Club by the Kennel Club ... in 1984 both the Saluki Club and the Northern Saluki Club informed The Kennel Club that they were not prepared to accept any change in the breed standard. The present Committee still stand by that decision."

In October my wife and I were visited by an Arab lady and her husband, her parents were born in Saudi Arabia and she and her husband had just come from that country. They brought numerous photographs of Salukis. The question of brindles was mentioned. She expressed astonishment that the colour was in question and produced there and then a colour photo of a brindle Saluki with cropped ears which they had seen in Jeddah and tried to purchase. The proud owner had replied: "There is not enough money in the world with which to buy him, he is my best hunting hound".

David Waters

  
**THE KENNEL CLUB** 1, Clarke Street - Piccadilly  
London W1Y 8AG  
Telephone 01-463 0851

Senior Secretary and Secretary  
Mr H. Simmatt CB  
Ref: MSS/20/F

28 August 1986

Lt. Cmdr. D.W. Waters RN FSA FRHistS FRINav.  
Robin Hill  
Bury  
Nr. Pulborough  
Sussex  
WN20 1NW

Dear Commander:

Thank you for your letter of 17 August 1986 and your views on the acceptability of brindle Salukis. The revision of the Breed Standard was the result of much detailed work and was conducted in consultation with the Breed Clubs. Nevertheless, I shall place your views before the appropriate Kennel Club Committee for their consideration.

Yours sincerely  
  
H. H. Simmatt  
Secretary

## **Appendix F: Sir Terence Clark's Documents** (submitted documents # 2 & 32)

### **The Annual General Meeting of the Saluki or Gazelle Hound Club Sunday, 21 March 2010**

#### **Agenda Item 12 – Markings and Colours in Salukis - Brindle**

I stress from the outset in these remarks that I have no vested interest in any brindle Saluki in the UK or elsewhere and that my concern is a general one for the breed as a whole.

I note from the summary of the discussion between the NSC and the SGHC that brindle – and blue – are not acceptable apparently on the grounds that they have not been seen in the UK. I venture to suggest that this information is inaccurate, since, for example, the Hon. Florence Amherst bred and registered as brindle in the UK the bitch Amherstia Nazarat O'Redledge (out of Amherstia Nesiba x Amherstia Shahshah). The bitch was subsequently exported in 1931 to the USA, registered there as brindle and became the foundation bitch for the Diamond Hill Kennel of Mr. Edward Aldrich.

The Amherstia example might be considered as similar to that of the all black dog Balu, referred to in Mr. Yardley's analysis of colours, which seems to have justified the inclusion of black as an acceptable colour, and adequate justification therefore for the inclusion of brindle too as having been previously seen in the UK. I am incidentally delighted that black has been included, as it occurs frequently in the Saluki's countries of origin, especially in Iran and Turkey, and increasingly in Europe and America, though always with a touch of white somewhere. But by the same token, brindle also occurs, albeit rarely, in the countries of origin and occasionally in Europe and America, and should not therefore be completely excluded.

As I understand it, the difficulty with brindle for many people in the UK is its association with Greyhounds and the suspicion of crossbreeding somewhere. There may well be grounds for such suspicion but I submit that it should not override the fact that brindle does occur naturally in lines which have no known connection with Greyhounds or other brindle dogs. A famous example is the aptly named smooth brindle El Tigre of Pine Paddocks bred in 1968 by Mrs. Esther Knapp from the silver dog Fajar Farouk of Pine Paddocks and the red and white Mazuri Catana, which had the well-known English Mazuri and Knighttellington lines in its breeding.

According to Dr Sheila Schmutz (see her webpage – <http://homepage.usask.ca>), brindle is an allele in the K series. The dominance hierarchy is  $K^B > K^{br} > r > k^y$ . The wolf is  $k^y / k^y$  and therefore it is assumed that all dogs with a  $K^B$  or  $K^{br}$  would have a mutation. The  $K^{br}$  mutation is complex and not yet published. It involves a "segmental duplication" meaning that a large segment of DNA, including the whole K gene and actually several more, is duplicated on the chromosome. This, she says, makes designing a DNA test that is easy to conduct very, very difficult. The practical issue with brindle and for that matter black is that there is no DNA test currently available to show which dogs with an e/e genotype carry  $K^{br}$ . Indeed it was not known until comparatively recently through Dr Schmutz's work that e/e occurred in Salukis. Thus it is perfectly possible for two champion dogs neither of which shows brindle to have brindle pups.

During my travels in the countries of origin I once came across just such a case. An American diplomat serving in Saudi Arabia had acquired two local Salukis, a feathered tricolour dog and a smooth red and white bitch. When the bitch was about 8 years old he bred them. Sometime later he was transferred to the UAE where I saw the parents and two of their offspring – a smooth tricolour and a feathered fawn brindle then about 8 months old. I attach photos of all four. The

tricolour sire does not carry  $K^{br}$  because if it did it would show. Therefore the dam must be carrying brindle even though it does not show. I have also seen and photographed a number of other brindles in the region but usually only with their dam or as individuals, so that I could not completely verify the breeding (examples can be seen on my web site [www.saluqi.net](http://www.saluqi.net) under Iraq and Iran).

My concern is that by closing the door now on brindle the SGHC and the NSC could cause owners embarrassment if brindle should suddenly appear in correctly registered UK Salukis or in the offspring of pedigree Salukis that are being increasingly imported from Europe and America. It would be unfortunate if the question of coat colour had to be reopened in the foreseeable future when the understanding of the DNA had advanced further forward. It is also arguable that for the long-term health of the breed we should not exclude from the gene pool any Salukis on the grounds of their coat colour, simply because the colour is unfamiliar in the UK. In this context it is worth noting that the K locus that gives us brindle but also black encodes a protein known to play a role in the immune system's defence against infections and should surely not therefore be excluded lightly.

I am not entirely clear why it is thought necessary to add to the list of markings and colours the note on brindle and blue, since there is already a catch-all stipulation for any deviation from the list. However if there are grounds for emphasising brindle, perhaps the simplest solution would be to emulate the description in the FCI breed standard of November 2000: 'Brindles are undesirable.' 'Undesirable' is not as final as 'not acceptable' and this would hold the position until DNA science has advanced enough.

I have not addressed here the colour blue as it is not defined anywhere in the documentation for the AGM. If the blue of Whippets and Italian Greyhounds is meant, I would say only that this is a colour I have never seen in Salukis in any of the countries of origin. If however grey-blue or smoky is meant, I would say that, like brindle, it occurs sometimes in dogs from the more northerly areas. Incidentally the Arabs actually refer to grey grizzles as *azraq* = blue.

Sir Terence Clark

5 March, 2010

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**From *The Society for the Preservation of Desert Bred Salukis Newsletter*, Fall 2010**

(reprinted with permission)

**Brindle in Salukis from the Countries of Origin (COO)**

**By ©Sir Terence Clark**

In my experience, brindle is rare in COO Salukis. In the past 25 years or so I have seen many hundreds of Salukis in the COO and of these only a small number showed brindle; but it certainly exists.



Fig. 1. Crop-eared brindle puppy near Telafar, Iraq

From my personal observations and from other examples, brindle seems to occur more in the northerly parts of the Saluki's range, i.e. in Iraq and Iran, where the breed may have been more exposed over the centuries to Central Asian influences, for example to the hounds of the area now called Afghanistan, where brindle is established in the hunting hounds from that region. In all the cases that I observed in Iraq and Iran, there were no other Sighthounds known to show brindle, such as



Fig. 2. Brindle grizzle near Samarra, Iraq



Fig. 3. Brindle puppy at Fadhiya village, Iraq

Greyhounds, Whippets, Sloughis or Galgos, present nor did the breeders, for the most part poor farmers, have access to such exotic breeds. The hounds that I saw were far from centres of sophistication.



Fig. 4. Brindle puppy's dam, Fadhiya, Iraq

The first brindle that I saw was in North-Western Iraq on the farm of a highly experienced and passionate hunter with a pack of smooth



Fig. 5. Brindle puppy at Chamchemal, Iraqi Kurdistan





Fig. 6. Brindle puppy on a farm outside NW of Tehran, Iran

Salukis. A tricolour bitch and a red dog had produced a litter of 8 brindle puppies (one with cropped ears is in photo #1). I later saw an almost identical one in the nearby village, probably from the same litter. The breeder had never seen the striped marking before and in so far as he could explain it he thought that the bitch had some Turkish blood in her. Turkey is not far from that area and hounds are traditionally traded or gifted across the border. However, though I have searched hard in Turkey, I have not so far come across a brindle Saluki.



Fig. 7. Sister of #6

Then I came across a brindle grizzle in Central Iraq which belonged to another passionate hunter (photo #2). In this case the hound's mantle is more patchy than stripy and its offspring had plain mantles, so perhaps it was not a true brindle. Next in Northern Iraq I saw a litter of four puppies, of which one was brindle (photo #3), born to a

smooth tricolour bitch (photo #4), but the sire was not present and I do not know its colour. Finally, in Iraqi Kurdistan I saw a feathered grizzle puppy (photo #5) with distinct black stripes; neither parent was present.



Fig. 8. Dam of 5 and 7.

In Northern Iran I saw two brindles, a brother and sister (photo #6 of the dog and #7 of the bitch), from a grey and white smooth bitch (photo # 8), but the sire was not present and I could not get a description of it.



Fig. 9. Tricolour sire of #12 at Sharjah, UAE

In all these cases the owners made no distinction of the brindle stripes, as appearance is generally secondary to performance, and accepted them as they would any other colour or marking.



Fig. 10. Red dam of #12





Fig. 11. Tricolour sibling of #12 at Sharjah, UAE

Most of the COO breeders whom I questioned had never seen brindle but none took objection to it.

While I was visiting the UAE in the early 1990s I saw another brindle at the home of a US diplomat. He had brought the tricolour feathered sire (photo #9) and the smooth red and white dam



Fig. 12. Brindle puppy of #9 and #10

(photo #10) with him from Jeddah in Saudi Arabia and some years later they produced a smooth tricolour and a feathered brindle (photo #11 and 12). The tricolour sire does not carry K<sup>br</sup> because if it did it would show. Therefore the dam must be carrying brindle even though it does not show.

I also include a photo ( #13) by Mike Ratcliffe of a black and tan with brindle from the kennel of one of the leading Bedouin breeders in Dhahran, Saudi Arabia. I do not know its breeding but the breeder is famous for his purebred Salukis.

With the spread of affluence in Saudi Arabia and the Gulf some hunters have imported Sighthounds and some of these have been crossed with local Salukis. It is possible to find therefore brindle crossbreds in some of the large kennels that the shaikhs maintain (photo #14 and 15). In general these crossbreds do not seem to be successful, having neither the speed of the Greyhound nor the stamina



Fig. 13. Black and tan brindle at Dhahran, Saudi Arabia

of the Saluki for the traditional form of hunting, especially for gazelle over long distances, though they are used for some hunting activities where a

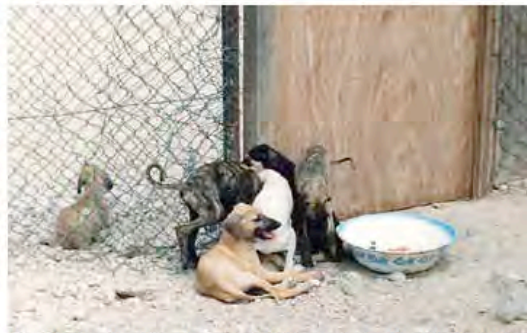


Fig. 14. Crossbred Greyhound x Saluki puppies in Abu Dhabi, UAE

short burst of high speed is advantageous. However I have not come across any evidence to suggest that such crossbreds have penetrated to areas outside the Gulf. I have not seen any brindles in Jordan or Syria.



Fig. 15. Crossbred Greyhound x Saluki, Dubai, UAE

## Appendix H: Genetic Studies and Commentary (submitted documents 11, 16, 18, 19, & 29/30)

### 1. a. “Genetics of Coat Color and Type in Dogs”

<http://homepage.usask.ca/~schmutz/dogcolors.html>

Sheila M. Schmutz, Ph.D., University of Saskatchewan

### 1. b. “Saluki Coat Color DNA Study”

<http://homepage.usask.ca/~schmutz/SalukiColor.html>

Sheila M. Schmutz, Ph.D., University of Saskatchewan  
(both linked here with permission)

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**2. “Early Canid Domestication: The Farm-Fox Experiment”** by Ludmilla N. Trut, published in *American Scientist*, vol. 87, March April 1999, 160 - 169  
Excerpted here with permission.

Describes a Russian experiment to breed foxes. In a closed population with no outside genetic material, mutations to coat color and other physical attributes appear spontaneously as described in this excerpt:

“Other physical changes mirror those in dogs and other domesticated animals. In our foxes, novel traits began to appear in the eighth to tenth selected generations. The first ones we noted were changes in the foxes’ coat color, chiefly a loss of pigment in certain areas of the body, leading in some cases to a star-shaped pattern on the face similar to that seen in some breeds of dog. Next came traits such as floppy ears and rolled tails similar to those in some breeds of dog. After 15 to 20 generations we noted the appearance of foxes with shorter tails and legs and with underbites or overbites. The novel traits are still fairly rare. Most of them show up in no more than a few animals per 100 to a few per 10,000. Some have been seen in commercial populations, though at levels at least a magnitude lower than we recorded in our domesticated foxes.” (page 164)

For the full article see:

<http://www.hum.utah.edu/~bbenham/2510%20Spring%2009/Behavior%20Genetics/Farm-Fox%20Experiment.pdf>

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**3. “Finding the Gene for Brindle”**, Dr. Bruce M. Cattanach, Ph.D., D.Sc., F.R.S., *The Boxer Ring*, Vol. 2, Issue 2, 2005, 28-32 (excerpted here with permission) Full text available at: [http://www.steynmere.com/gene\\_brindle.html](http://www.steynmere.com/gene_brindle.html)

Dr. Cattanach investigates the genetics behind fawn and brindle coat types in Boxers. These excerpts note fawn to brindle mutation.

### The Exceptions

The three ‘exceptions’ include two brindles that had a fawn parent and therefore must carry fawn.

But, on the basis of the key marker they should not have been brindle at all. They carried marker Y and should have been fawn, but genetically they were now  $k^{br} - Y/k - Y$ . The third exception was a fawn that typed as a brindle; she carried marker X and genetically was now expected to be  $k - X/k - Y$ . There appeared to have been an exchange of markers. But was this the correct interpretation? And if so, when did these marker - gene exchanges occur? In a parent, or grandparent, or a yet earlier generation? And in the case of the two brindles, did they derive from two independent events, or from a single event in some common ancestor? The two brindles were related, so the latter was a possibility, but one of them had a French sire and this raised further possibilities.

### **The Fawn Exception**

The pedigree check on the exceptional fawn immediately suggested a completely different explanation for its marker typing. The animal traced back within two generations to a dog called Faerdorn Joker In The Pack. Those who had been in the breed long enough in the UK remembered this dog and the excitement he caused in his day. He was the only fawn sired by the well-established 'dominant (homozygous) brindle', Tyegarth Blue Kiwi. A DNA analysis done at the time on Joker and sibs, and also on Kiwi and some other dogs showed that everything was consistent with Kiwi being Joker's sire; and Joker indeed bred like a fawn, never producing brindles to fawn bitches. The conclusion therefore was that he had directly inherited a new brindle-to-fawn mutation from his sire, Kiwi. Thus, in the current study, rather than representing an exchange between the DNA marker and brindle, the exceptional fawn may have inherited the brindle-to-red mutation from the great-grandfather. Evidence of this might be obtained by checking the marker type in the parents and earlier ancestors in line back to Joker.

Such a screen quickly showed that the mutation hypothesis was the most probable explanation. While the fawn sire of the exceptional fawn bitch typed as a normal fawn,  $k - Y$ , the fawn dam, as also another fawn daughter to a different sire, typed as brindle,  $k - X$ . And, while the dam's sire and the key grand-sire, Joker, were no longer available, another Joker son was found to be  $k - X$ . In effect, the data on this family, obtained with the key marker suggested there had not been a brindle - marker exchange, rather the brindle gene itself had mutated. The  $k^{br}$  had become  $k$  while the key marker was still X. The brindle-to-fawn mutation hypothesis was strongly supported, but further evidence was needed.

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## **4. "Coat Color in Salukis – What's All the Fuss?"**

**Casey Gonda, DVM**

Originally published in *The Saluki*, Championship Show Edition 2010, reprinted here with permission.

*Note: Detailed information regarding the inheritance of coat color in salukis and Afghans can be found @ <http://homepage.usask.ca/~schmutz/dogcolors.html>*

The recent appearance of brindle patterned Salukis in the United States has caused concern among many breeders, exhibitors, AKC judges, breed historians and fanciers. It has lead to a polarizing, often emotional debate that pins those who accept the brindle pattern as authentic, against those who consider the pattern as evidence of impurity. The controversy does not end with the brindle pattern. Additional concern has been fueled by an insurgence of atypical coat colors, such as blue, black

and/or combinations of these colors in a small number of dogs imported to the US within the last decade. A number of these dogs also carry a black mask, atypical of the Saluki, but commonly documented in breeds such as the Sloughi, Greyhound and Afghan. With the exception of the Saluki, the brindle pattern occurs often and is accepted among these breeds, based on their written breed standards. The Afghan and Greyhound have few if any restrictions or disqualifications regarding color or pattern, but the Sloughi and Turkmen Tazi, like the Saluki, list certain acceptable colors and patterns.

Based on phylogenetic analysis and DNA sequencing, researchers have identified a close relationship between Salukis and Afghans. Additionally, one study has shown that these two distinct breeds, considered members of the ancestral dog gene pool, developed in a rather confined area of Egypt.<sup>1</sup> Although evidence suggests that they descended from the same predecessors and have many physical traits in common, including certain coat colors and patterns, microsatellite data allow both can be assigned to their respective breeds.<sup>2</sup>

Further evidence regarding the relationship between these two breeds raises new questions, with the recent discovery by Dreger and Schmutz<sup>5</sup> of a mutation in one of the genes responsible for the grizzle pattern in Salukis, which is known as “domino” in Afghans. The grizzle color-pattern, ubiquitous in salukis, encompasses a wide range of colors from almost black to pale cream. Though this pattern has likely been present and conserved in the Saluki for thousands of years, its history in the Afghan is less clear. Once referred to a “reverse mask,” the pattern gained popularity in America with the importation in the mid 1950s of the successful show dog Tanjores Domino, for whom the color-pattern was then named. Is the presence of this mutation, thus far proven to be exclusive to these two breeds, evidence that Afghans and Salukis received it from one of their forbearers or has blood from the Saluki been introduced into the Afghan gene pool during the latter centuries to account for the appearance of this pattern? Historic accounts of how the Afghan breed developed are somewhat sketchy, but some historians theorize that Salukis may have been used to improve certain features of the breed during its development.<sup>3</sup>

Alternatively, should it be expected that the brindle pattern, the black mask and solid black/blue coat color so common to Afghans also existed in our ancestral Salukis or was the brindle pattern, for example, the result of a mutation that occurred after the two breeds diverged? One can consider two possible scenarios: either the brindle mutation was present in both breeds, but was not conserved by early Saluki breeders, or it never existed in the early Saluki and could only have appeared due to admixture from another source, such as a breed(s) of similar type who possessed the genes for these atypical colors and patterns.

The brindle phenotype is likely an old mutation, because it is found in a diverse group of domestic dog breeds.<sup>4</sup> The presence of this complex mutation, called  $k^{br}$ , causes brindle stripes all over the body in dogs with an  $a^y$  allele and only on the parts of the body that are not solid black in black-and-tan dogs ( $a^t / a^t$ ). Only two of the four agouti alleles ( $a^y$  and  $a^t$ ) are common in Salukis and are responsible for producing fawn/sables/black fringed red ( $a^y$ ) and black-and-tan ( $a^t$ ). Although  $k^{br}$  is recessive to the allele causing black ( $K^B$ ), it is unlikely that the brindle mutation could have remained “hidden” beyond 2 or 3 generations, especially in the face of selection pressure against solid black. As a dominant allele,  $K^B$  (along with the brindle mutation, if present) would have been

rapidly removed from the gene pool, leaving most dogs with a  $k^y/k^y$  genotype, as was recently demonstrated in a study of 24 Salukis who were tested for the K alleles.<sup>7</sup> Conversely, it is possible that the brindle pattern could have been conserved if individuals possessing the mutation were retained and bred together (resulting in a high percentage of dogs homozygous for the mutation) or the mutation was passed generationally among isolated groups of self cream/red individuals, that carried the  $e/e$  genotype (which is epistatic to all alleles at the K locus), masking the pattern. However, the vast array of colors present among the early importations from indigenous locations, coupled with pedigree analysis of their descendants, is evidence against this possibility.

Although there have been sporadic reports of solid black Salukis appearing prior to the last decade, they are rare. Due to the dominance of the  $K^B$  allele, there should have been a fair number of dogs who carried forth the color through their progeny and beyond, as was the case for Afghans who were predominantly black during the early development of the breed.<sup>3</sup> If one considers that many of the early hounds were “designed” to accommodate differences in region, climate and terrain, it would be reasonable to assume that solid black Salukis, confined to the more arid locations, might not have performed as well as their light colored counterparts in the heat of the desert and were culled, but this is only speculation. If this theory is correct and black was selectively removed from the majority of desert lines for such a reason, how is it that the black-and-tan dogs figure so prominently in our pedigrees?

Thanks to the discovery of the mutation responsible for the grizzle pattern, there is a plausible explanation. The most common colors and patterns described among the early imports were cream/red/fawn, partis and grizzle. The grizzle color pattern and cream/red genotypes can allow black and tan to remain hidden for generations, particularly when grizzle and cream/red are consistently selected for in a given population. Production of the grizzle coat pattern involves an interaction between genes in the agouti ( $a^y/a^l$ ) and extension series ( $E^M/E^G/E/e$ ). For a dog to appear grizzle, one or more  $E^G$  allele must be present, in addition to two copies of the black-and-tan agouti allele ( $a^l/a^l$ ). In fact, two of the genotypes that make up a grizzle dog and twelve of the genotypes responsible for red/cream and “clear” ( $e/e$ ) red/cream dogs are capable of hiding black-and-tan. Therefore, it is easy to see how the black-and-tan allele, but not the solid black allele or brindle mutation could be conserved, even with the intentional removal of black-and-tan individuals. In Afghans, the presence of one copy of the gene for a melanistic mask  $E^M$ , which heads the dominance hierarchy at the E locus, will prevent the domino phenotype from being expressed resulting in a black-masked, black-and-tan individual.<sup>5</sup>

Among a list of fifty-three Middle Eastern Salukis who were imported to England from 1895-1982, forty-six had their coat color or pattern entered in the UK Stud Book and none were listed as solid black or brindle. Two dogs; Reshan of Kurdistan and Feena of Kurdistan imported in 1921, were listed as black and white partis. It is unknown whether they were truly black and white (therefore carrying the  $K^B$  allele) or black and tan partis with the tan obscured by white spotting. This could be the case, as no black descendants can be traced to them. English Ch. Ameena of Ayot (06.08.1926), a daughter of the famous English sire, Ch. Sarona Kelb (black-and-tan) was also registered as black. However, close inspection of her photos indicates that she was a faintly marked, sooty-faced black-and-tan. Two of her daughters; Angel of Ayot listed as black and white and Cis-of-Ayot, are featured in many modern pedigrees, yet left no black descendants. Angel was the dam of the cream



dog Solomon of Shammar, behind the Burydowns and Cis, the dam of the grizzle Mazuri Sheba, a foundation bitch for Gwen Angel's Mazuri kennels.

Rare also has been the appearance of brindle patterned Salukis from the time of the earliest imports during the late 1800s to the present. Although solid black Salukis are occasionally seen in old paintings and other works of art, brindle Salukis are absent. It is likely that many of the dogs thought to have been brindle as puppies and registered as such, were in fact black fringed reds or sables with extensive, heavy black overlay that confused identification of the adult color.<sup>3</sup> This too could have been what caused the error with Ameena of Ayot, for as a faintly marked black-and-tan puppy, she could have appeared solid black due to intense black overlay.

Moving on to the history of brindles in the United States, we have another case in point with Amherstia Nazarat O'Redledge (03.05.1929), imported from England and registered in the stud book as brindle with cream markings. This color entry was proven to be incorrect when, as an adult and prior to export from England, she won her first C.C. and at that time was correctly entered in the English stud book as red. It is likely that the puppy color initially entered into the breeding record was simply never corrected and merely transposed on her export papers for her trip to America. Carol Ann Lantz saw Nazarat in the late thirties as an old dog and recently verified that she was in fact red, not brindle.

One unexplained curiosity remains regarding the smooth singleton puppy, Emir el Tigre of Pine Paddocks (10.01.1968), bred by Esther Knapp, who was registered as brindle and verified in photos as such. Mrs. Lantz took some of the only photos of this dog and recalls discussions she and Mrs. Knapp had about him. Mrs. Knapp, who considered him an oddity, referred to Tigre as "her apartment sized Great Dane." Aside from his surprising pattern, he also demonstrated vastly different type and quality from that of his silver grizzle sire "Fajar Farouk of Pine Paddocks" or dam, the imported red smooth, "Mazuri Catana." Mrs. Knapp never chose to breed him and records show no other offspring recorded for Catana. A careful examination of his pedigree shows no brindle ancestors recorded for Catana or Fajar and no other brindles were ever produced at Pine Paddocks. Tigre did however share an amazing likeness to a brindle Sloughi that Mrs. Knapp had acquired, leading to speculation that he was the actual sire of Tigre. Almost 38 years ago, I was fortunate to have been shown Tigre on one of my many visits to Pine Paddocks. Mrs. Knapp was amused by her striped dog and enjoyed showing him off, especially to unsuspecting newcomers to the breed! I can still picture the devilish smile and wink of the eye she gave me as she posed him in front of me, asking "what do you think of this?"

Unfortunately, all of the Salukis claimed to have been brindle are deceased. Of the few photographs available supposedly depicting brindle Salukis, the age and quality of the photos has made verification difficult or the dog's ancestry can not be validated. Based on our current understanding of the transmission of this coat pattern in other breeds, including Salukis and Afghans, one  $k^{br}$  allele must be present and at least one parent must be brindle or carry the brindle genotype to produce brindle offspring. This information, coupled with generational analysis of pedigrees, when available, do not support the presence of brindle in the population of Salukis descended from their indigenous home in the Fertile Crescent of the northern Arabian Peninsula. In addition, none of the handful of now deceased dogs reported as brindle and of known ancestry has left brindle progeny.

Of 24 Saluki dogs (spanning 3 continents) tested in an original color study, lead by Sheila Schmutz and colleagues, the majority (20) did not carry either the  $K^B$  allele or the brindle mutation ( $k^{br}$ ). One solid black dog and one dog, black with white spotting, had at least one copy of the  $K^B$  allele consistent with their phenotypes. Of the two remaining dogs in the study, both brindles, one was reported to have a single brindle parent, while the other owner reported neither parent was visibly brindle. As would be expected in the first, but not the second, a genotype consistent with the brindle pattern was verified at the molecular level in both dogs and demonstrated the presence of the brindle mutation ( $k^{br}$ ). As discussed previously, the brindle mutation can be “hidden” by agouti alleles responsible for self red or cream. These dogs have the genotype “e/e” which blocks the production of black hair anywhere on the dog, thus making the dark striping “invisible” against the red or cream color. This was the likely explanation for the second dog whose dam was reported as cream. In addition, the second brindle also had a black mask. The gene for masking ( $E^M$ ) resides on a different chromosome from that of K and, like the grizzle mutation, is part of the “extension” series. One copy of this gene is sufficient to produce the black mask and is transmitted by way of simple autosomal dominance, meaning only one masked parent is needed to produce masked offspring.<sup>5</sup> This “genotypic” black mask is common in Afghans, Greyhounds and Sloughis, but not Salukis. Two dogs entered in the study, a black fringed red and a black and silver had what is referred to as a “sooty muzzle.” This muzzle coloration, occurs sporadically in Salukis, but is usually less distinct than the genotypic black mask described above and may fade in some dogs as they age. It is unclear at this time what mechanism is responsible for this coloration, which is often produced by two clear faced parents. Neither of the 2 dogs with sooty muzzles tested carried the allele for  $E^M$ .

The Saluki is not part Sloughi, part Aazawakh, part Turkman Tazi, part Afghan or part of any of the other related hound breeds. The Saluki is one of the oldest of pure breeds and is defined by a specific geographic region of the Middle East, known as the Fertile Crescent. This has resulted in a “genetic signature” based on a geographic location that has been transmitted from the indigenous dogs thousands of years ago, and at the molecular level, can be identified today in our domestic, purebred Salukis who trace to these dogs.<sup>1</sup> The original imports of the late 1800s and early 1900s formed the basis of our modern Saluki and were carefully chosen by our predecessors specifically from these indigenous regions at a time when nomadic tribes were isolated and untouched by western influences.

Those who originally developed the breed insisted that a Saluki not only be a good hunter, but that the dog maintained characteristic physical features and qualities that set the breed apart from all others. Civilization is the ancestral Saluki’s enemy. In less than two centuries; transportation, mechanization, political wars and continued spread of modern civilization into once isolated populations have changed forever, the face and livelihood of these areas indigenous to the Saluki. Now, more than ever, we have a responsibility to protect our breed against the influence of blood coming from regions in and outside of the Saluki’s ancestral home. How could anyone who loves this breed and has dedicated themselves to protect the purity of the Saluki, not have this as their ultimate goal?

None of us own the Saluki. As has been said before, the breed is “on loan” to us. It should be the primary responsibility of those who breed Salukis to protect them by questioning anything, no matter how insignificant it may appear, that could affect the future purity of the breed and to insure that they remain, in their likeness for thousands of years to come.



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**5. “Linkage and Segregation Analysis of Black and Brindle Coat Color in Domestic Dogs”** by Julie A. Kerns, Edward J. Cargill, Leigh Anne Clark, Sophie I. Candille, Tom G. Berryere, Michael Olivier, George Lust, Rory J. Todhunter, Sheila M. Schmutz, Keith E. Murphy and Gregory S. Barsh, *Genetics*, Vol. 176, 1679-1689, July 2007, Copyright © 2007 (reprinted with permission).

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**Keywords:** Domestic Dog, Melanocortin signaling, Agouti gene, Pigmentation, Brindle coat color

## ABSTRACT

Mutations of pigment type-switching have provided basic insight into melanocortin physiology and evolutionary adaptation. In all vertebrates that have been studied to date, two key genes, *Agouti* and

*Melanocortin 1 receptor (Mc1r)*, encode a ligand-receptor system that controls the switch between synthesis of red-yellow pheomelanin vs. black-brown eumelanin. However, in domestic dogs, historical studies based on pedigree and segregation analysis have suggested that the pigment type-switching system is more complicated and fundamentally different from other mammals. Using a genome-wide linkage scan on a Labrador x Greyhound cross segregating for black, yellow, and brindle coat colors, we demonstrate that pigment type-switching is controlled by an additional gene, the *K* locus. Our results reveal three alleles with a dominance order of *black* (*K<sub>B</sub>*) > *brindle* (*k<sub>br</sub>*) > *yellow* (*k<sub>y</sub>*), whose genetic map position on dog chromosome 16 is distinct from the predicted location of other pigmentation genes. Interaction studies reveal that *Mc1r* is epistatic to variation at *Agouti* or *K*, and that the epistatic relationship between *Agouti* and *K* depends on the alleles being tested. These findings suggest a molecular model for a new component of the melanocortin signaling pathway and reveal how coat color patterns and pigmentary diversity have been shaped by recent selection.

Full text available at:

<http://www.genetics.org/cgi/rapidpdf/genetics.107.074237v1>

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## About the Brindle Pattern Research Team

**Brian Duggan, M.A.**, (Chair) is the author of the award winning *Saluki: The Desert Hound and the English Travelers Who Brought it to the West* – the product of over fifteen years of research in three countries. Since 1993, he has published over twenty-five articles and stories about Salukis – a number of which won awards in the annual Dog Writers Association of America contest. Brian was president of the Saluki Club of Greater San Francisco for fifteen years, has been the *AKC Gazette* Breed columnist for since 2005, and has judged in America, England, and Finland. He has been invited to present his research at SCOA Nationals and Western Regionals, the Festival of the Saluki in England, 2007, and the Saluki World Congress in Finland, 2008, and consulted with the producer and writer on the Saluki segment of National Geographic's *And Man Created Dog*.

Brian has studied biology and history, and has a bachelor's degree in filmmaking and a master's in education. He has been a media professional in higher education for twenty-seven years and is currently the Director of Learning Services for California State University, Stanislaus. He has written and produced instructional videos and been published professionally on a variety of topics related to instructional technology.

**Dr. Casey Gonda** has bred and shown champion Salukis and Arabian horses for over 35 years. An active member of the Saluki Club of America, she serves on the Health and Genetics Committee and has authored several health related

articles published in *The Classic Saluki* and *ASA Newsletter*. In 2009-2010 she acted as sample coordinator for the Saluki Coat Color-DNA Study with principal investigators Sheila Schmutz, PhD. and Dayna Dreger.

She received her Doctorate in veterinary medicine from The Ohio State University in 1994 and in 1999 attended the Virginia-Maryland College of Veterinary Medicine, where she completed a three-year residency in large animal internal medicine and a Master of Veterinary Science. She is board certified and specializes in equine internal medicine and a member of the American College of Veterinary Internal Medicine and American Veterinary Medical Association. She currently lives and practices in Charlottesville, Virginia with her husband Les and 6 incredible Salukis.

**Lin Hawkyard** has been breeding Salukis under the Lorrequer prefix for over 30 years –

I have been a dedicated student of the breed since I saw my first Saluki in England 35 years ago and started collecting Saluki pedigrees in the days when the only programs available were written in DOS in a spreadsheet format. Today I have over 50,000 pedigrees covering the UK, USA, Germany, Holland, France, Sweden, Denmark, Finland, Australia, New Zealand etc. and I belong to several study groups that are dedicated to the collection of information and pedigrees of Salukis the world over. I was fortunate to be gifted the complete AKC Stud Book from the first-ever entry, which has been an invaluable resource. As well as the early pages of the Stud Book I subscribe through the SCOA to the monthly AKC Stud Book pages. I am also working on the SCOC Book of Champions with fellow Canadian breeders and contributed toward the research for the history of the Saluki as written by Robbie Pattison for *The Classic Saluki*.

I have a vast library of books on the dog, probably every book ever published on the Saluki, and an extensive collection of Saluki periodicals complete with indices for all these magazines to make research for specific items simple. I was also fortunate to be able to inherit a small but fascinating collection of Saluki cuttings and memorabilia from a long time Saluki breeder. I have worked on the SCOA *Book of Records* Committee for several years and I have also worked on the ASA *Caravanserai* committee supplying pedigrees and proof reading material for the 2005 *Caravanserai*.

In my non-doggy life I worked mainly in the administrative field both in the UK and here in Canada. I was Chief Admin Officer at the pharmaceutical company Roussel Hoescht in Montreal, later moving to Ottawa, where I worked for an engineering company sub-contracted to the Department of National Defence, doing research work to formulate quotes for computer systems on F16 fighters and other defensive systems.

