

The current state of Alex's line in the Bohemian Shepherd Dog breed



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Abstract

The Bohemian Shepherd Dog is a Czech working dog breed of medium size with a long black-and-tan coat and characteristic ear shape. The dogs of this breed are friendly, trainable, and with no sign of nervousness. The population of this historic breed of dogs, known since the 13th century, was almost destroyed until 1984, when Jan Findejs and Dr. Vilém Kurz partnered to take the first steps to regenerate the breed. One of the sires used in the project was a sire named Alex. This study aimed to determine the state of Alex's line (IV. line), and the number of descendant dogs born from 2021 until the first quarter of 2024. Used 13 years after the start

of the breed regeneration project, and with only two breeding first-generation descendants, Alex's line accounted for 2.7% of the population from the beginning in 1996 until 2008. In 2009 an expansion started, caused by three of his male descendants who sired more than 100 puppies each, resulting in Alex's progeny accounting for 41.25% of all registered puppies from 2021 to 2024. Therefore, genetic testing before mating is now an essential measure to prevent genetic diseases in purebred dogs.

Key words: *Bohemian Shepherd Dog; genealogy; popular sire; degenerative myelopathy*

Introduction

The Czech Republic cherishes several native dog breeds, with Czechoslovakian wolfdog and Czech terrier as the more popular breeds. Amongst them is an old breed that is becoming more popular and recognised: the Bohemian Shepherd Dog (BSD), or "Chodský pes" as it is called in the country of origin. BSD is a medium size dog, with a long, rich coat, always in black-and-tan colour, and weighing 17-27 kg. The characteristic ear shape and vivid tan markings in specific shapes are characteristic of the breed (Anonymous, 2019). The breed has been recognised on a provisional basis by International

Canine Federation (FCI) since 2019 and placed in group 1: Sheepdogs and Cattle-dogs (except Swiss Cattle-dogs), section 1: Sheepdogs, with a working trial.

History

The history of the BSD goes back to 13th century, when the most important road to Germany leading from town Domažlice in the Šumava region, Bohemia, was guarded by the Chods ("Chodové", an ethnic group living in western Bohemia), accompanied by strong, tenacious, highly resilient dogs. In those times,

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the duty of these dogs was not only to help guard and defend the former Bavarian-Czech border, but they were also used for herding and had to be capable of tracking during game hunting.

In the post-WWII period, this historically documented breed fell almost into oblivion, but around 1948, a few enthusiasts tried to put together a proposal for the recognition of the BSD, but to no avail.

In 1984, International FCI judge Jan Findejs and cynology expert Dr. Vilém Kurz partnered to take the first steps leading to regeneration of the breed. Pictures of this shepherd breed were published in cynological magazines with a call for potential owners of this preserved shepherd breed. Several readers responded, including two owners from Prostějovsk who knew that they had a BSD. This was fol-

lowed by an expert assessment of the first pair and comparison with the preserved documentation, written materials, and drawings. On 28 October 1984, the breed standard was published. The basis for the re-creation of the old breed was a female named Bessy, a male Dixi, and a second male Blesk discovered a little later. The first registered kennel of BSD was "na Barnace" by Mr. Ladislav Hykl. The main goal of breed regeneration was to raise healthy, highly resilient and undemanding dogs, highly temperamental with an appetite for work, excellent guards and companions in any situation.

In 1985, the first litter was born (from Dixi and Bessy) with six puppies, and then in 1986 the second litter (from Blesk and Bessy) also had six puppies. Subsequently, from 1987 to 1992, 35 litters were whelped. Five years after the first litter of



Figure 1. Ch. Daren Valaimdar (Source: kpchp.org)

BSD, other regenerates were gradually used in the breeding to revive the bloodline, which corresponded in their type and characteristics to the desired intention of creating the breed. At first, these were "test" litters, and after the evaluation of their breeding, they were further used according to the results. There were two bitches, Dina and Brita, and 3 dogs: Brix (III. line), Alex (IV. line), and Harry (V. line). In the years 1993-95, there was a rapid and significant improvement in the unification of the breed type (Anonymous, 2018).

Since then, the breed has expanded in Europe, mostly in the Nordic countries, where breed clubs are established (Sweden, Finland, Denmark, and Norway). There are also breed clubs in the Netherlands and Switzerland. There are several individuals and one kennel in Italy (Bosso, 2024) and a smaller number in the United States of America.

Physical characteristics

According to FCI standard, the body of a BSD is oblong and covered with a long coat with a rich undercoat, making the coat weather-resistant. The body structure has superb harmony and a graceful appearance.

Standard height at the withers is 52 to 55 cm for males and 49 to 52 cm for females with permissible deviations of +/-2 cm. The body is a bit longer than tall, with a 10:11 relation. The depth of the chest should be half the height at the withers, and the muzzle should be slightly shorter than half the total length of the head.

Coat colour other than black-and-tan is not permissible. The typical tan markings are placed, when fully extended: Inside and on the edges of the ears, above the eyes, on the cheeks, on the sides of the muzzle, on the throat and forming a cres-

cent shape, on the brisket, on the inner and rear part of the thighs, on the distal parts of the legs, under the tail, and around the anus.

The head has a noble appearance and is in proportion to the body. The skin on the skull is taut and covered with short, thick, and smooth hair. Stop is distinctive, but neither too sharp nor too gentle. The eyes are medium-sized, almond-shaped, full of energy, with a pleasing expression.

The ears of a BSD give the breed its distinctive appearance: Short, erect forward-facing, positioned high and close together. They are triangular with a broad base; tips are either pointed or slightly rounded. The earlobes are covered with long thick hair that forms brushes, particularly at the root and along the edges (Anonymous, 2018). The president of the "Klub přátel chodského psa" (The Bohemian Shepherd Dog Friends Club, KPCHP), Jana Kudrnáčová, in her breed presentation, states "In the (show) ring, Bohemian Shepherd should have upright erected ears which are proof of its spirited character and underlines its typical expression" (Kudrnáčová, 2020).

The tail is carried naturally in a slight curve. It is thickly covered with coat and reaches to the hocks. Not to be docked.

Typical gait is low trot. Movement is light, flexible, and far-reaching. Movement is a reflection of the right skeleton and angling and corresponds to the temperament of a BSD: a lively, fearless dog with strong nerves.

Temperament

A dog of this breed should be easily trainable and attentive, with no signs of nervousness. Its reactions are quick, and the dog is agile but not impetuous. It has an innate love for people, is friendly, very contactable, and therefore easy to con-



Figure 2. Female puppies from dam Ch. Bellissima Tryreplay and sire Heron Vigilo showing typical tan markings and ear shape at 7 weeks of age [Courtesy of Ms Dagmar Hajkova Bosso].

trol (Metelková, 2018). Reward-based techniques should be used for teaching common training skills. The application of aversive methods – which, by definition, rely on the application of force, pain, or emotional or physical discomfort – should not be used in canine training or for the treatment of behavioural disorders (Hiby et al., 2004; Anonymous, 2021).

The BSD is tenacious, and resistant even to bad weather. It tolerates the cold very well. In the sunny summer weather, however, it is necessary to provide it with shade (Metelková, 2018). The Croatian Animal Protection Act requires all pets to be provided with housing conditions in accordance with their needs. It is forbidden to keep and treat or allow the movement of pets in a way that endangers the health and safety of people, especially children and animals. It is forbidden by law to keep dogs permanently tied or to

keep them in areas for keeping dogs separately without allowing free movement outside that area (Anonymous, 2017).

Kept either outside or indoors, it is necessary to ensure adequate housing, respecting the dog's need for company but also for rest and security. When keeping the dog indoors, it is necessary to organise the dog's housing so that it has peace when it wants to rest, but also in such a way that it can see what is happening in other rooms. Dogs like to be with their family and even larger breeds can be kept in an apartment if exercised regularly (Bauer, 1992).

Characteristics of a BSD make it suitable for sport and work. There are many members of the breed competing in utility, obedience, agility, dog dancing, dock diving, treibball, etc. (Bosso, 2024), but also working in search and rescue, herding, and dog therapy.

Health

The BSD belongs to one of the healthier working breeds. Higher degrees of hip dysplasia (HD) occur in an acceptable proportion of the total number of X-rays taken, and the test for HD is obligatory for breeders. Other diseases also occur only in a small number of cases. Nevertheless, KPCHP supports the breeders and owners with education, information availability, examinations, and financial motivation to owners and breeders of BSD. The goal is to examine the largest possible part of the population so that relevant statistical outputs and a potential breeding plan can then be composed (Anonymous, 2015).

The club encourages its members to test their dogs for elbow dysplasia, spondylarthrosis of the spine, shoulder osteochondrosis, hereditary eye diseases, congenital deafness, hypothyroidism, cardiovascular examination, and echocardiography including Doppler imaging. Relevant genetic tests are for degenerative myelopathy and locus D.

Three variants of recessive alleles on locus D are associated with lightened fur coloration in dogs, resulting in black or brown pigment lightened ("diluted") to grey or light brown in homozygous recessive individuals, while heterozygotes are unaffected carriers. (Drögemüller et al., 2007; Bauer et al., 2018; Van Buren et al., 2020).

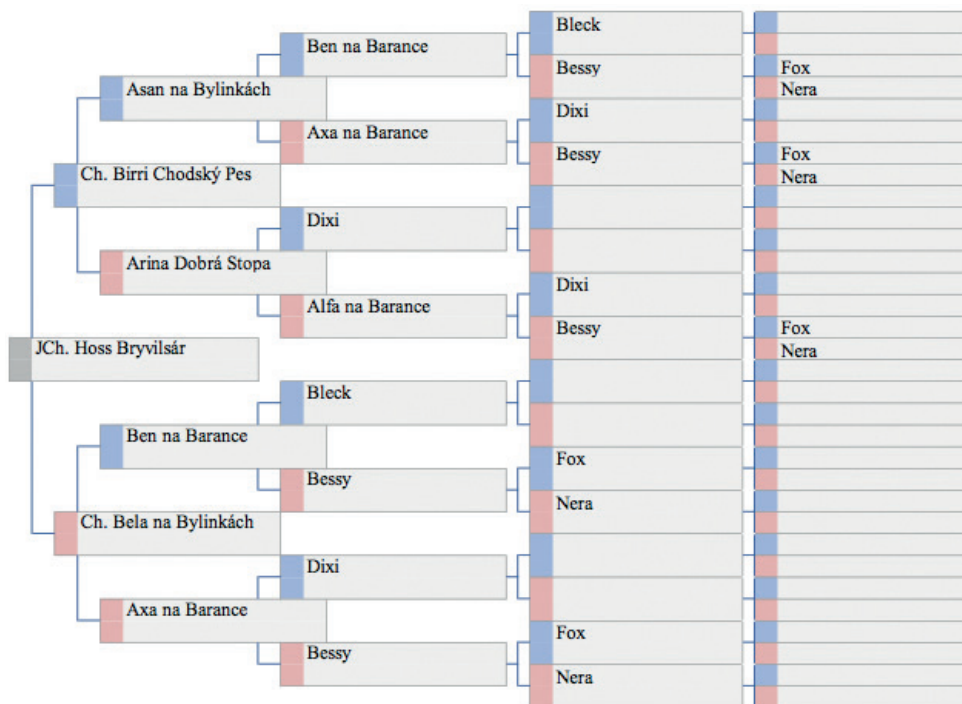
Degenerative myelopathy (DM) is a disease that affects the spinal cord in dogs, causing progressive muscle weakness without pain and loss of coordination in older dogs. It was previously regarded as a disease of German Shepherd Dogs, however in recent years the disease has been identified in many other breeds. There is no cure for DM; however, treatment is aimed

towards increasing comfort through a combination of lifestyle changes, medication, and physical therapy. Vitamins B, C, and E, minerals (especially selenium), and omega-3 fatty acids supplements are recommended (Hajsig and Pinter, 2012). As the disease develops after the recommended breeding age, breeders of predisposed breeds should practice responsible breeding by genetic screening prior to mating to reduce the prevalence of the gene and of DM. In clinically-affected breeds, the disease is inherited in an autosomal recessive fashion and is caused by an allele of the SOD1 gene. This mutation has incomplete penetrance, meaning a dog with two copies of this gene will have a higher chance of developing DM, though other genetic and environmental factors contribute to the development of the disease, while heterozygous dogs are unaffected carriers of the gene (Coates et al., 2007; Awano et al., 2009; Shelton et al., 2012).

Pedigrees

By analysing most of the randomly selected pedigrees in the publicly available pedigree database on the KPCHP webpage, Blesk, Bessi, and Dixi, are found as the oldest known ancestors. If in the randomly chosen pedigree of a bitch named Abatiše Auri ze Zevlova Dvora born on 01.10.2023., randomly chosen is her great grandmother's (Britta z Letinské kovárny 09.03.2008) ancestor – JCh. Hoss Bryvilsár (23.11.1995), Blesk, Bessy, and Dixi are found as his great-grandfathers and great-grandmother.

The next example is the randomly chosen dog Arrow pod Štúlama born on 26.01.2024, his randomly chosen great-grandmother Madelain Tass z Gi-

Table 1. JCh. Hoss Bryvilsár pedigree

pova (04.03.2007), and her great-grandmother Ciri Prima Nova (16.09.1991). Ciri's great-grandmother and great-grandfathers are Blesk, Bessy, and Dixi.

In a smaller number of pedigrees, Alex can be found as a progenitor. For example, Lerry z Letinské kovárny (19.10.2015) and his great grandfather Ch. Daren Garsia (26.10.1996). Daren Garsia's ancestors on his dam's side were Blesk, Bessy, and Dixi, but his sire was Alex, whose only known ancestors are sire and dam: Karus and Celina.

This study aimed to determine the state of Alex's line (IV. line), and the number of dogs born in that family tree from 2021 until the first quarter of 2024. The research was conducted by analysing the publicly available pedigree database on the KPCHP webpage.

Results

The database kept by the KPCHP has 9718 dogs registered since the start of the breed regeneration. Amongst those, 1751 dogs were born from 2021 to the beginning of 2024.

From the pedigree database, Alex's registration number (350/96) and the owner (Kopecka Anna) are visible. His date of birth, HD and DM status is not known. Alex sired four litters, all in 1994, with dams Aretta u Panáka (A litter), Angi Birridian (B litter), Asta Santana (O litter) and Catty Bryvilsár (D litter). Of 19 descendants, four of them had litters: Africa Calamity Jane, Ornella Prima Nova, Djanet Garsia, and Ch. Daren Garsia, but only the last two had grandchildren.

Djanet Garsia

Djanet Garsia (26.10.1996.) registration number 526/96, gave birth to two litters in Chodská Kráska kennel, of which only Aima Chodská Kráska (17.09.1999) produced progeny. Her four litters were produced in the Valaimdar kennel, three of which were sired by Ch. Daren Garsia (2004, 2006, and 2007), and one (litter A) by Ch., JCh. Endy Bryvilsár. Litter C produced two more generations of descendants, litters A and B only one generation, but from litter D, 04.05.2007. Desi Valaimdar and Ch. Daren Valaimdar were born.

Ch. Daren Valaimdar sired 106 sons and daughters, and his sister, Desi Valaimdar in two litters gave birth to 16 puppies in total. One of these, Et Valaimdar, was used for breeding and produced 24 puppies.

Et's daughter, JCh., Ch. Ebigail z Jamenských Valíků had a litter in 2021 sired by Cash Temný Onyx in which eight puppies were born.

One of Et's sons, Ch. Dorien z Jamenských Valíků fathered eight descendants, and two daughters were used in breeding: Tesi z Letinské Kovárny had litters in 2021, 2022 and 2023 with 26 puppies total, and Daisy od Vltavské Stráně one litter in 2021 with five puppies.

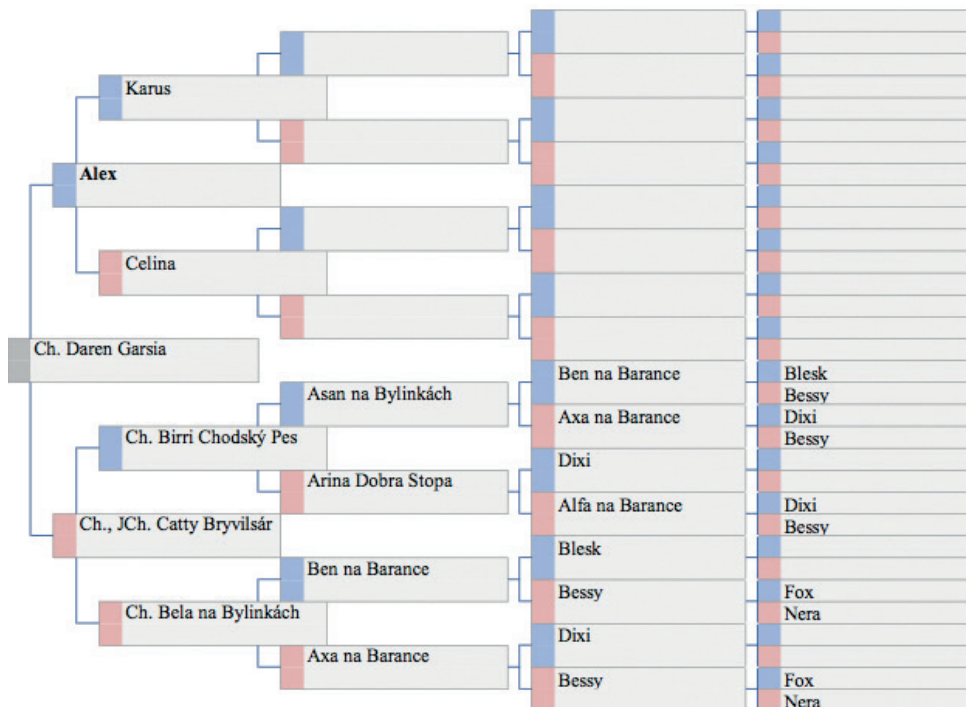
Ch. Daren Valaimdar

Djanet Garsia's grandson, and Daren Garsia's son, Ch. Daren Valaimdar, sired 18 litters in the period from 2009 to 2014, but active breeding continued in only eight litters. A combination with Ch., JCh. Keisy z Dašického Zátíší's produced a large number of descendants, i.e., daughter Trinity z Dašického Zátíší was born, amongst others. A larger number of descendants that are actively used in breeding originate from Trinity's three litters. For example: through litter A,



Figure 3. Alex, registration number 350/96, [Source: kpchp.org]

grandson Lerry z Letinské Kovárny was coupled with Primavera Vita Canina and produced seven sons and daughters. His daughters, born in 2019, Ennie Prácheňský Poklad, Destinnie pod Všerubskou Skálou and Dessire pod Všerubskou Skálou, during 2021, 2022, and 2023 gave birth to a total of 24 puppies in five litters. Trinity's daughter, Lussy z Letinské Kovárny, in 2019 had one litter of puppies, sired by Ch., Grand Ch., VCh. Chester z Dašického Zátíší. In 2022 and 2023, 41 puppies were produced, of which 22 in four litters were sired by Aron Black Friend ze Zahradní Ulice. From her B and C litters in 2018, Trinity z Dašického Zátíší had a grandson Grand Ch., Ch. Deadpool Amans Kynos and a granddaughter Astraia Bohemia Gold Love. Astraia gave birth to seven puppies in 2020, and in 2021 and 2023 a total of 17 puppies, while Grand Ch., Ch. Deadpool Amans Kynos, from 2021 and 2023 successfully sired 13 litters and produced 63 descendants in the first generation.

Table 2. Ch. Daren Garsia's pedigree

His second litter Ch. Daren Valaimdar got from a combination with Frona od Strážné Skály, and their granddaughters Anabela Great Joy and Amia Great Joy had a total of seven puppies in two litters, since 2021.

Ch. Daren Valaimdar was coupled with Ch. Kesie z Dašického zátiší (not to be mistaken with her littermate sister Ch., JCh. Keisy z Dašického Zátiší) twice, in 2010 and 2011. Granddaughter Cedra z Příborského dvora in 2022 gave birth to two puppies, and grandson Grand Ch., Ch., VCh. Chester z Dašického zátiší sired seven litters (2017–2020), whose youngest progeny (not counting the above), are sons and daughters from Belle pod Všerubskou skálou (13 puppies in two litters with Athos Krosandra) and Astrid od Třemšína (seven puppies with Ch. Dyk Rosa White). Cherie z Dašického zátiší,

sister of Grand Ch., Ch., VCh. Chester z Dašického zátiší gave birth to six litters., of which the last two were in 2021 and 2022, with a total of seven puppies (with the emphasis that four puppies were sired by Ch. Deadpool Amans Kynos). Through her first litter, Cherie got four grandchildren in 2021. The youngest descendants of Vief z Dašického zátiší, son of Ch. Kesie z Dašického zátiší are his six grandchildren born in 2021 from a combination of sire Dior Rosa White and dam Bailey Bella Aurinko.

Vief's littermate, Vesna z Dašického had a litter of puppies and her daughter, VCh. Gracie z Dašického Zátiší. The family was continued with granddaughter Ch. Bellissima Tryreplay and great-granddaughter Aura Best of Bosso, who is among five others chosen as a breeding prospect.

Through son Grand Ch., Ch., JCh., VCh. Amos z Dašického zátiší Keisi and Daren got eight great-grandchildren in 2022.

In 2010, Daren Valaimdar fathered VCh Merida Virgilio's litter "A", from which two puppies were used for further breeding: Airisa Bess Choďák and Arigit Amay Choďák. Arigit's granddaughters, Betty z Podmokelských Pastvin and Bridget z Podmokelských Pastvin in 2021 and 2022 gave birth to a total of 12 puppies. Airisa Bess Choďák's descendants were much more numerous. Her grandson Etyen od Brány Ráje born on 08.06.2016 sired 110 sons and daughters in 21 litters from 2019 to 2023. Counting first and second-generation, 118 puppies were registered from 2021-2023. Etyen's mother, VCh. Bertie od Brány Ráje gave birth to two more litters, with a total of 39 descendants born from 2021 to 2023.

Daren Valaimdar's next combination was in 2010 with Connie z Boršova which produced seven puppies, one of which was Grand Ch., Ch., JCh. Akim z Čermenských Lesů. Akim fathered seven litters from which two grandsons are noticeable sires: Albert Česká Holka (whose sire is VCh. Cash Temný Onyx) and JCh. Argon od Medvědí Jámy, which fathered 34 puppies from a total of 66 Akim's descendants born since 2021. Except Akim's descendants, Connie z Boršova has 15 more descendants.

Through Daren Valaimdar's combination with Ubree z Dašického zátiší in Valaimdar kennel, which produced only three puppies, 31 great-grandchildren were produced since 2021 to which 42 descendants from Meny Valimdar (born 29.02.2020) need to be added. With dam Bell Acacia Hill, Ch. Daron Valaimdar got two granddaughters: Indien Zejeriss and Iggy Zejeriss, who in 2022 gave birth to a total of seven puppies.

Ch. Daren Darsia

Except for the three litters with Aima Chodská kráska, Ch. Daren Garsia (26.10.1996), registration number 522/96, sired two more litters: with dams Bela Prima Daja and Charliena Lukato Gold.

Litter "I" was born by Bela Prima Daja in 2003 and gave three puppies of which only Iris Lady z Gipova was bred. Her descendants born in 2021 and 2022 are through her daughters Grand Ch., Ch. Arwen od Perlového potoka and Barča od Perlového potoka. Their parents are Dakotta z Mukova (four puppies in 2021), sire Grand Ch., Ch., VCh. Athos z Hájenska (13 puppies in 2021), sire Argo od Koryta Šatavy (five puppies in 2022), and dam Betty z Temelína (six puppies in 2021).

Ch. Daren Garsia in combination with Charliena Lukato Gold produced eight puppies, one of which, Ajsha od Heřmanského Hrádku was bred. Descendants of her B litter were born since 2021, from Agila od Leskounského Kopce's last two litters (of five) produced a total of seven puppies; Cita od Leskounského Kopce's H, I, and J litters with a total of 11 puppies, Arika od Kostomlátecké Kapličky five puppies in 2022, Gesí od Leskounského Kopce (Cita's daughter born in 2020) had two puppies in 2023.

VCh. Cash Temný Onyx

Charliena's only great-grandson through her A litter, VCh. Cash Temný Onyx (born on 18.01.2013) in the period from 2016 to 2021 sired 18 litters with a total of 102 puppies. Two bitches were bred twice to Cash: Black Pearl Věčná Legenda and Freny od Brány Ráje.

VCh. Cash Temný Onyx's first litter was born through Ellis z Janiny, who is Ch. Daren Valaimdar's granddaughter. Albert Česká Holka, born in that litter, sired 20 puppies in 2021-2023, already

Table 3. Presentation of Alex's progeny. Families without dogs whelped after 2021 are not shown

Generations							Progeny whelped 2021-2024	
1	2	3	4	5	6	7		
Alex	Ch. Daren Garsia	Ajsha od Heřm. Hrádku	Bonie Ronovský Poklad	Cita od Leskounského Kopce	Gesi od Leskoun. Kopce	2 offspring	2	
					26 offspring		11	
			Agila od Leskounského Kopce	Arika od Kostoml. kapličky	13 offspring	5		
				14 offspring		7		
		Asan Ronovský poklad	VCh. Cash Temný Onyx	102 offspring		82		
		Iris Lady z Gipova	Grand Ch., Ch, Arwen od Perlového Potoka	Cony z Melechovské Stráně	Grand Ch., Ch., VCh. Athos z Hájenska	13 offspring	13	
					Aslan z Hájenska	Dakotta z Mukova	4	
	Barča od Perlového Potoka		Dak od Perlového Potoka	Ajša na Skalském kopci	Argo od Koryta Šatavy	5		
			Betty z Temelína	6 offspring	6			
	Djanet Garsia	Aima Chodská Kráska	Ch. Daren Valaimdar	Airisa Bess Choďák	VCh. Bertie od Brány Ráje	Etyen od Brány Ráje	118	
				105 offspring			435	
		Desi Valaimdar	Et Valaimdar	Ch. Dorien z Jamen. Valíkú	Daisy od Vltavské stráně	5		
					Tesi z Letinské kovárny	26		
			JCh., Ch. Ebigail z Jamen. Valíkú	8 offspring	8			
	Total							727

mentioned in Ch. Daren Valaimdar's section.

Grandsons through Black Pearl Věčná Legenda, Gethel Věčná Legenda, and Draconis Věčná Legenda sired a total of six litters with 29 puppies in 2022-2024. With dam Catty Matomicco, Cash produced a litter of six, one of which, Deli Matomicco, brought 13 puppies to the world, in 2021 and 2022.

Frenco od Brány Ráje had Cash's litters in 2019 and 2021 and her daughter Beliz Český Rubín gave birth to four of Cash's grandchildren in 2021. Grand Ch., Ch., JCh. Wurzi Bryvilsár, son of VCh. Cash Temný Onyx and Pandora Bryvilsár was born on 27.12.2019, and since 2022 sired 41 puppies in eight litters.

In 2021 Cash sired nine litters which produced: the above-mentioned eight puppies with JCh., Ch. Ebigail z Jemenských Valíků, (granddaughter of Desi Valaimdar); with Cákorka ze Zevlova Dvora eight puppies, three with Ember Černá Luna, two born by Lenny z Malého Údolí, six puppies from Wendees z Dašického Zátíší, seven by Frenco od Brány Ráje, three puppies from Euphoria Černá Luna, from Ch. Frony Eimiparti five puppies and Heather Western Star gave birth to five puppies. That totals 82 descendants of VCh. Cash Temný Onyx was born in 2021-2023 (not counting progeny shared with Desi Valaimdar and Ch. Daren Valaimdar).

The progeny analysis showed that 727 dogs of Alex's descent were born in the years 2021, 2022, 2023, and the beginning of 2024.

Discussion

History mentions two pairings, Dixi and Bessy in 1985, and Blesk and Bessy in 1986 as founding couples, with three dogs later added in breeding, Brix, Alex,

and Harry. By looking at pedigrees, most of the dogs' ancestry can be traced to the three founding dogs: Dixi, Bessy, and Blesk, with Alex appearing in a smaller number of pedigrees. Assuming Alex (and two others) were added to increase genetic diversity in the breed, the aim of this study was to determine whether adding Alex resulted in any descendants in recent years.

By analysing the results, it can be concluded that Alex had two first generation descendants used in breeding: Djanet Garsia and Ch. Daren Garsia. Daren and Djanet during their lives (1999-2008) had a total of 40 first-generation and second-generation descendants. The total number of puppies born in that period was 1483, which made Alex's descendants 2.7% of the total number of BSD puppies. Ch. Daren Garsia has his own line of descendants, but he was also used for inbreeding uncle-to-daughter with his sister's (Djanet) daughter Aima Chodská Kráska. From this combination, a fruitful D letter was produced, with a coefficient of inbreeding 13.28% (Alex 6.25%, Catty Bryvilsár 6.25%) (Beuchat, 2015; Dreger et al, 2016; Yordi et al, 2020). Amongst this litter, Ch. Daren Valaimdar was born. As a very popular sire, he fathered 106 puppies in 18 litters, because of which he has 553 descendants born in 2021-2024. One of his great-grandsons, Etyen od Brány Ráje is responsible for 118 of these.

Iris Lady z Gipova's line has 28 young members (3.85% of 727), but Ajsha od Heřmanského Hrádku's descendants are much more numerous since VCh. Cash Temný Onyx has 82 newest progeny registered in 2016-2021 out of his 102 fathered puppies.

Of the 9718 dogs registered since the beginning of breed regeneration, 1751 dogs were born from 2021 to 2024 and 727 of those are descendants of Alex, so it

is obvious that 41.52% of the young population are progeny of Alex, and 31.58% came from of Ch. Daren Valaimdar. Conversely, without Ch. Daren Valaimdar, Alex's descendants account for only 9.93% of all young dogs.

It is easy to see that the expansion of Alex's bloodline started in 2009 with Ch. Daren Valaimdar as he produced 106 puppies until 2014, most of them in 2010 (36 puppies). The total number of registered puppies in that period was 2149, so that Ch. Daren Valaimdar's puppies account for 4.93% of all registered puppies in 2009-2014.

His most fruitful combination was with dam VCh. Merida Vigilo since it produced Etyen od Brány Ráje who alone has 118 descendants whelped since 2021. On the other hand, descendants of Ch. Daren Valaimdar's first litter with dam Ch., JCh. Keisy z Dašického zátiší resulted in 158 puppies since 2021 but from 10 different great-grandchildren, meaning there is more genetic diversity.

There is a notable male, Grand Ch., Ch. Deadpool Amans Kynos born in 2018 that produced 63 puppies till 2024 and it would be interesting to analyse his impact on the breed in the future. There is also a notable line from D litter from Desi Valaimdar, Daren's sister, with 39 registered puppies since 2021, accounting for 5.36% of Alex's young progeny.

Descendants of Desi Valaimdar, Lady z Gipova and Ajsha od Heřmanského are but a few, and those lines should be preserved for the genetic diversity of the breed. It is worth mentioning the current breeding dogs: Daisy od Vltavské stráně, Tesi z Letinské kovárny, Ch, JCh Ebigail z Jamenských Valíků (Desi Valaimdar's progeny) and Dakotta z Mukova, Grand Ch, Ch., VCh. Athos z Hájenska, Argo od Koryta Šatavy, and Betty z Temelína (Bela Prima Daja's progeny).

Expansion started in 2009 with one popular sire, Ch. Daren Valaimdar, whose fathered descendants made up 4.93% of all registered puppies in that time, until 2014. The intensive growth was continued in 2016 by VCh. Cash Temný Onyx's 18 litters with 106 puppies registered until 2021. In 2019, Etyen od Brány Ráje, grand grandson of Ch. Daren Valaimdar was used for the first time as a sire, and until 2023 he contributed with 110 puppies.

Ch. Daren Valaimdar's daughter, Vesna z Dašického zátiší was exported to Italy, and her litter of seven born on 01.08.2013, was the first litter of BSD born in Italy. Owners and breeders were Ms Dagmar Hajkova Bosso and Mr Umberto Bosso, who are, to this day, the only breeders of BSD in Italy. Vesna's daughter, VCh. Gracie z Dašického Zátiší and granddaughter Ch. Bellissima Tryreplay are the foundation of breeding in Italy, as after the FCI's recognition of the breed, Ch. Bellissima Tryreplay's A litter, born on 03.03.2022, was the first litter with the Italian kennel club (Ente Nazionale della Cinofilia Italiana, ENCI) pedigree. From this litter, Aura Best of Bosso, amongst five others, was chosen as a breeding prospect (Bosso, 2024), meaning there is a small, but important part of Alex's family spreading in Italy and other parts of Europe.

Our study shows that, although it started small, Alex's line expanded as a result of using popular sires, since three of his male descendants sired more than 100 puppies each. It shows that, contrary to our belief, Alex's descendants are many, as they make up 41.52% of all dogs whelped since 2021, but most of them "hide" behind one dog, so it was easy to miss Alex when looking at the pedigrees. Our results show how great an influence one popular male can have on a population. For example, if Ch. Daren Valaimdar carried a recessive

debilitating genetic mutation, like allele for DM, or a gene for atypical colours, such as D/d3, then 31.58% of the young population might be in danger of being carriers. If not genetically tested, there is a danger of two carriers being coupled and producing clinically affected dogs, or dogs with atypical phenotypic characteristics. Our study confirms the importance of genetic testing of purebred dogs as a measure of prevention of genetic diseases.

Conclusion

Added 13 years after the start of breed regeneration, and with only two breeding first-generation descendants, Alex's line accounted for 2.7% of the population from the beginning in 1996 until 2008. Expansion started in 2009 with sire Ch. Daren Valaimdar, and was continued in 2016 by VCh. Cash Temný Onyx. and 2019 Etyen od Brány Ráje until 2023.

Alex's descendants now account for a strong 41.25% of all registered puppies of the BSD, with 727 puppies registered in 2021-2024.

Descendants of Daren Garsia's daughter Iris Lady z Gipova are not many (3.85%), likewise Desi Valaimdar's descendants (5.36%) and those lines should be carefully preserved and maintained. The KPCHP and breeders should be aware of these fragile families and the fact that they should be preserved for genetic diversity.

Genetic testing before mating is an irreplaceable measure of prevention of genetic diseases in purebred dogs.

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Trenutno stanje Alexove linije u pasmini ovčarski pas iz Bohemije

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Ovčarski pas iz Bohemije je češka radna pasmina pasa, srednje veličine, s crnom dugom dlakom, paležom i s karakterističnim oblikom uške. Psi ove pasmine su umiljati, lako se obučavaju i bez znakovna nerveze. Ova stara pasmina, poznata od 13. stoljeća, gotovo je nastala stoga su 1984., Jan Findejs i Dr. Vilém Kurz pokrenuli regeneraciju pasmine. Jedan je od parnjaka korišten u tom projektu bio i pas imenom Alex. Cilj je istraživanja bio otkriti stanje Alexove linije (IV. linije) i broj pasa potomaka oštećenih od 2021. do kraja prvog kvartala 2024. Alex je korišten 13 godina nakon početka

oživljavanja pasmine, a samo sa dva potomka prve generacije koji su se koristili u uzgoju, Alexova je linija činila 2,7 % ukupne populacije od 1996. do 2008. Godine 2009. počela je ekspanzija korištenjem triju mužjaka koji su svaki imali po više od 100 štenaca. Zbog toga je Alexovo potomstvo činilo 41,25 % svih registriranih štenaca od 2021. do 2024., stoga je genetsko testiranje prije parenja nezamjenjiva mjera prevencije genetskih bolesti u čistokrvnih pasa.

Ključne riječi: ovčarski pas iz Bohemije, rodoslovlje, popularni parnjak, degenerativna mijelopatija