Royal Veterinary College
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ipfdogs International Partnership for Dogs

The Good, the Bad, and the Ugly: Real-World Outcrossing and Crossbreeding Experiences

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Outcrossing and Crossbreeding
What are we talking about?

Outcrossing is the practice of crossing between different dogs of the same breed, with no known common ancestors
(Dogwellnet, 2021)

- Crossing a Show line with a Working line
- Crossing two lines of the same breed who have, for some reason, never met
- Crossing dogs that been geographically separated for a long time, and are now distinct genetic populations

- Introduces unrelated genetic material into a breed, increasing genetic diversity and potentially reducing inherited disease risk, inbreeding depression and associated welfare problems

- While **limited by the breed's existing gene pool**, it can be an **effective first step** in improving population health and genetic sustainability

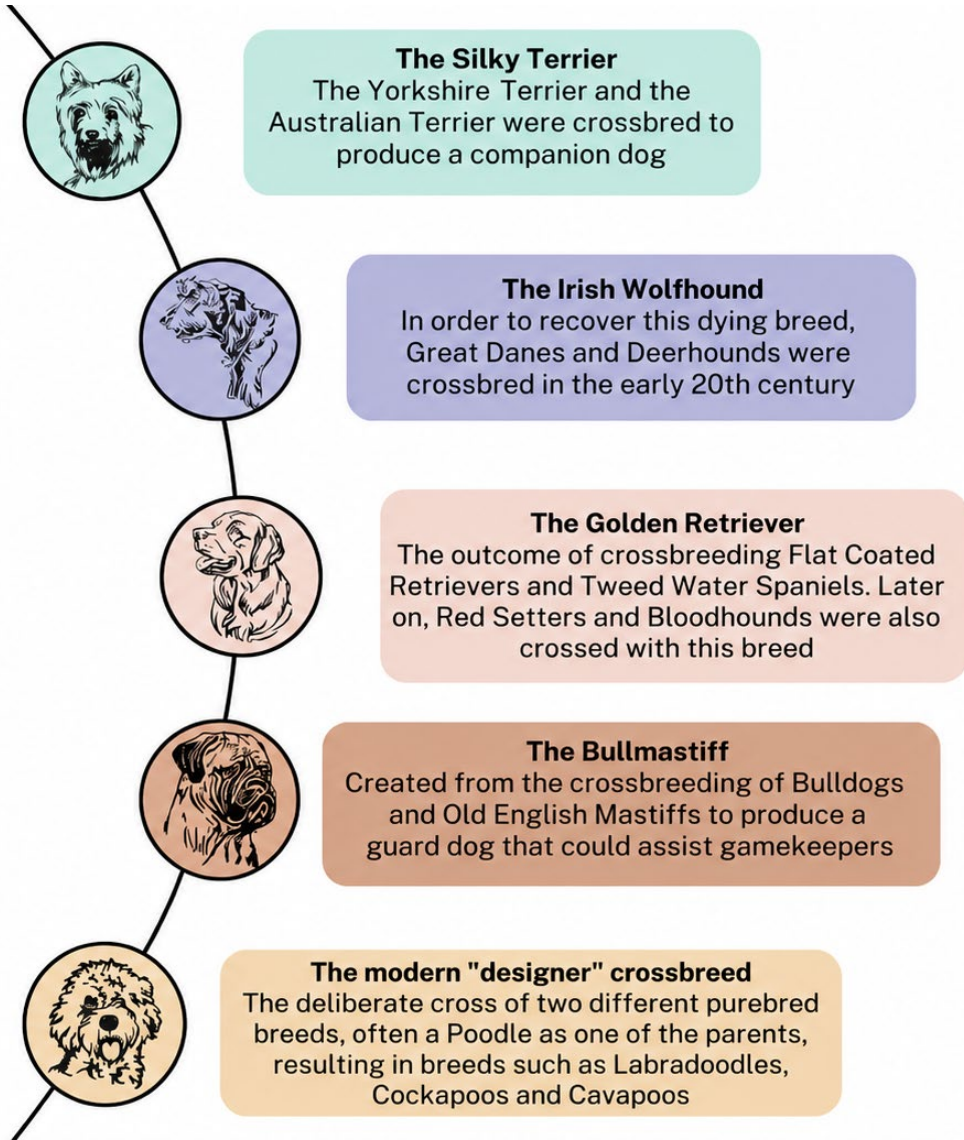
Outcrossing and Crossbreeding
What are we talking about?

Crossbreeding is the general practice of mating two dogs of different varieties or breeds
(Dogwellnet, 2021)

- Breeding **two different breeds**, who *may or may not* have origins in common but are distinct breeds.
  e.g. Irish Setter and Irish Red and White Setter, or Labrador Retriever and Standard Poodle

- Can **drastically increase the genetic diversity in a breed,** and can be a powerful tool for improving a breed and its genetic diversity for:
  - Numerically small breeds with high levels of inbreeding
  - Breeds with "fixed" mutations
  - Breeds with uniformly extreme conformation

- **Crossbreeding is currently and historically the way that new breeds are developed**



The Good, the Bad, and the Ugly

A Conceptual Framework for Evaluating Current Outcrossing and Crossbreeding Programmes

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The Good

Programmes produce a net welfare and population-genetic benefit

A. Clear welfare-driven purpose

- Targets include inherited disease, extreme conformation, loss of genetic diversity and inbreeding depression, rather than novelty or commercial demand

B. Evidence-based and transparent genetic management

- Structured breeding plans, genomic/pedigree tools, health monitoring and long-term population management including open registries where appropriate

C. Selection prioritises function and health

- Emphasis on health, longevity and behaviour over extreme aesthetics

D. Sustainable breed integration

- Genetic diversity and welfare improvements are maintained and accepted within the breed population

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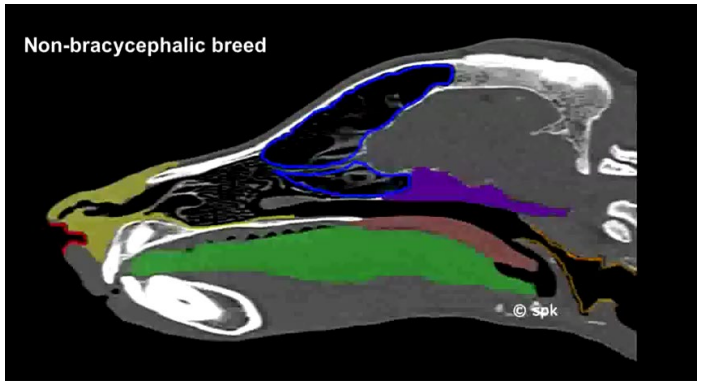
The Good

- **Category 1:** Breeds which, as they are currently bred, are not unduly affected by disorders
- **Category 2:** Breeds where existing disorders can be brought under control with modified breeding programmes **without cross-breeding** and where the **original breed type can be preserved**
- **Category 3:** Breeds in which existing disorders can **only be controlled by cross-breeding programmes** and where the **original breed type can be preserved**
- **Category 4:** Breeds in which existing disorders can **only be brought under control by cross-breeding programmes**, but which result in the **loss of the original breed type and the emergence of another**



Goal: Restore functional anatomy

The Good
Example: Extreme conformation

Finnish Kennel Club (2023 –)

- Strategic crossbreeding of the French Bulldog with: American Staffordshire Terrier, Jack Russell Terrier, Mittel Spitz, Swedish Farm Dog and Papillons/Phalènes
- Focus: BOAS and *12-FGF4* (IVDD)
- Health testing (e.g., x-ray screening) and temperament assessment
- **Fourth-generation dogs** can be registered as French Bulldogs
- **3 litters to date**

F1 litter
DOB: 31.12.2023

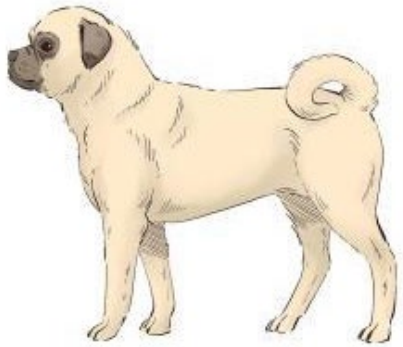
German Kennel Club (VDH) (2022 –)

- Application for controlled crossbreeding approved by VDH board in late 2024
- Selected female dogs undergo health examinations for hereditary diseases
- Selection of potential mating partners based on weight, size, health and genetic checks
- **52 puppies to date** registered in an appendix to the studbook

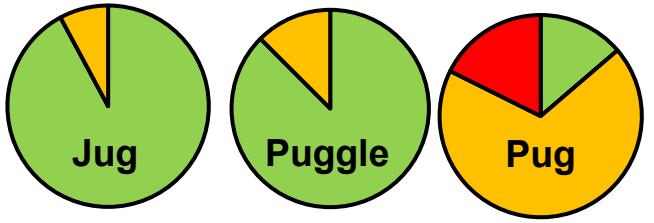
F1 litter: DOB: 20.12.2025

Finnish Kennel Club (2026 -)

- Crossbreeding project for the Finnish Pug club, aiming to improve health by crossbreeding with Retro Pugs (non FCI registered breed)
- Retro Pugs created by Pugs crossed with: Beagle, Shiba Inu, Danish–Swedish Farmdog, Miniature Pinscher, and Jack Russell Terrier.
- Aiming to **preserve temperament**



The Good
Example: Extreme conformation



Lower CFR strongly predictive of BOAS+ (Grade II/III)

Global reduction in disease burden, while maintaining behavioural characteristics and dog-owner bond (Youens et al, 2026b)

- **Respiratory function grading (RFGS)** (Liu et al, 2015): No Pugs scored grade 0, 47.1% Pugs scored grade 2-3, while 100% Jugs and 97.9% Puggles scored grade 0
- **Orthopaedic and neurological exam:** Pugs more likely to show abnormalities in 7/11 domains
- **Dermatological assessment:** Pugs more likely to have skin fold dermatitis than Puggles/Jugs
- **Heat, eating, sleep and breathing dysfunction scores** (Packer et al, 2012; Packer et al, 2019): Significantly higher for Pugs than Jugs or Puggles
- **Canine Brief Pain Inventory** (Brown et al, 2007): Significantly higher for Pugs than Jugs or Puggles
- **Median veterinary costs/month**: Higher for Pugs (£41.67) than Jugs (£9.65) or Puggles (£10.17)
- **C-BARQ (behaviour)** (Hsu et al, 2003): No differences, other than Pugs less trainable than Jugs or Puggles
- **MDORS (dog-owner bond)** (Dwyer et al, 2006): No differences in emotional closeness or perceived costs

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The Good
Example: Extreme conformation

Outcrossing programmes

- **Danish Kennel Club (2024 –)**
  - Opened breed registries for English Bulldog, French Bulldog and Pug to dogs without FCI pedigree
  - Entry into registry requires a phenotypic evaluation and a maximum RFG grade of 0 or 1

- **German Kennel Club (VDH)**
  - "Pug 2.0 project"
  - Opening the club's studbook to Pugs outside the VDH
  - Aiming for moderation e.g., longer muzzle, smaller nose fold, less wrinkling
  - Disorder testing including RFG, spinal x-rays

Creation of new breeds

- **Continental Bulldog**
  - Aimed to reconstruct the Bulldog phenotype around functional health
  - Crosses between English Bulldogs and Olde English Bulldogge-types
  - Unlike many crossbreeding projects it has survived and stabilised (Swiss KC recognised (2005), FCI provisionally recognised (2022))

The Good
Example: Genetic health

Project		Started	Problem	Cross / Genetic Strategy	Acceptance
Dalmatian (LUA)		USA, 1973	Hyperuricosuria fixed within the breed causing urate stone disease	Crossing with **Pointer** followed by repeated backcrossing	AKC and UK KC recognition achieved; LUA lines persist internationally but remain a minority within the breed population
Norwegian Lundehund (Melis et al, 2022)		Norway, 2014–2015	Extreme bottleneck, Severe loss of diversity, Inbreeding depression Lundehund syndrome	Crossing with: **Norwegian Buhund Icelandic Sheepdog Norrbottenspets**	Strong kennel club and breed club support; programme ongoing, but long-term population impact still emerging
Leonberger (LeoGen)		UK/Finland/ Europe, 2023–2024	Low genetic diversity High relatedness Short lifespan Cancer concerns	Crossing with: **Landseer Guide-dog-derived Retriever crosses** With genomic monitoring and backcrossing plans	Emerging international initiative with UK/Finnish kennel club engagement; too early to assess long-term uptake or success

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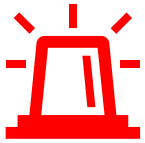
The Bad



Programmes where intended welfare or genetic benefits are absent, transient, poorly evidenced, offset by new harms, or driven by non-welfare motivations

A. Poor Genetic Compatibility

- Risks include:
  - Introducing new disease alleles
  - Incompatible morphology
  - Incompatible behaviour
  - Loss of working function

B. Lack of Long-Term Planning

- Common failures:
  - One-generation “health boost” thinking
  - No follow-up breeding structure
  - No diversity retention strategy
  - Rapid re-closure of stud books

C. Commercialisation and Fashion Crosses

- Common problems:
  - Unregulated breeding
  - Lack of health testing
  - Marketing tool rather than welfare tool
  - Owner expectations of resultant offspring do not meet reality – ‘hybrid vigour’ oversimplified

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The Bad

Example: "Doodle phenomenon"

- Originally bred for purpose as Guide Dogs (Australian Labradoodle); however, many commercial crosses now marketed under simplistic claims of:
  - **Hybrid vigour → Superior health**
  - **Hypoallergenicity**

- But:
  - **Market driven** rather than population-driven breeding – emergence of new types e.g., Cavapoo, Cockapoo
  - Crossbreeding **without genetic strategy**
  - **Health testing** lacking or inconsistent
  - Little long-term **population management**

Provenance

Buyers less likely to adhere to recommended purchasing practices (e.g., not viewing prior to purchase, not seeing puppy with mother) (Burnett et al, 2022)

Purchase motivations

Hypoallergenicity, perceived good health, ease of training, good with children (Burnett et al, 2022)

Health

Largely equivocal to their purebred progenitor breeds (87% no difference in prevalence, 7% lower, 6% worse) (n=9,402) (Bryson et al, 2024)

Behaviour

Higher levels of problem behaviours (46% no difference, 44% worse, 10% better) (n=9,402) (Bryson et al, 2026)

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The Ugly

Programmes that expose conflict between welfare optimisation and established breed ideals for aesthetics and pedigree/purity

A. Aesthetic cost of functional recovery and loss of recognisable breed type

- Visual markers of "type" may be closely linked to the biology of dysfunction and require crossbreeding or outcrossing to achieve substantial health gains by conformational moderation

- These changes may improve welfare while reducing perceived breed authenticity:
  - "Incorrect" as per breed standard
  - Insufficiently typey

B. Purity vs Welfare Ethics

- Crossing may challenge the cultural value placed on pedigree, even when welfare outcomes are favourable
- A dog without multigenerational purebred may not be considered "the breed" – 'mutts'/'mongrels'

C. Social and institutional resistance

- Programmes can be undermined by:
  - Kennel Club resistance
  - Judging culture
  - Breed club politics

……Resulting in low uptake

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The Ugly?

- **Physical appearance** is the 2nd most influential factor on breed choice of purebred dogs (after being a good companion breed), and **1st for owners of extreme brachycephalic breeds** (Packer et al, 2017)

- UK Public opinion over crossbreeding is mixed (Youens et al, 2026a; n=5,035):
  - Concerns raised about crossbreeding included perceived new health issues, reduced predictability of appearance and temperament
    - **Existing owners of <u>purebred</u> brachycephalics:** Most likely to be concerned about the loss of 'purity' or detrimental effects on appearance, and expressed a desire to only ever own a purebred dog
    - **Existing owners of <u>crossbred</u> brachycephalics:** Most likely to think crossbreeding results in better temperament and appearance

- Study (n=4,899) of AI generated 'less extreme' brachycephalics found the UK public scored them more highly across all domains (e.g., **attractiveness**, **health**, **ethics of breeding**) than 'current extreme' or 'super extreme' dogs
- But were **less likely to consider them purebred** (Youens et al, 2025)

"The dog no **longer looks as attractive** as it was if it was pure bred. I find pure bred pugs to be much cuter than cross breeds e.g. jugs"

"Ruining the preservation of purebred dogs that have **been around for years**."

"I don't like crossbreeding, **human interference is never good**"

"**Temperament could change undesirably** e.g. less cuddly, more yappy, harder to train, more prey drive"

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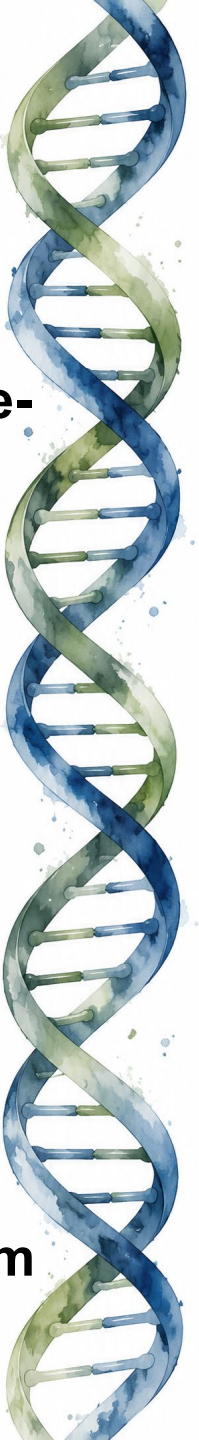
Conclusions

- Crossbreeding and outcrossing are already **occurring widely in the real world**, often outside of formal kennel club systems and often **accepted by the public**
- Modern crossbreeding programmes are **not a radical departure from canine history**, but a return to the genetic exchange through which **many breeds were originally developed**
- Well-designed outcrossing/crossbreeding programmes can **improve welfare**, **restore genetic diversity** and **reduce inherited disease burden,** tackling problems **more effectively and efficiently than within-breed selection**
- However, successful outcrossing/ crossbreeding programmes require **large-scale breeder buy-in (and kennel club endorsement and expertise)**, clear goals, genetic management and long-term selection priorities
- Some barriers to implementation and improved health may arise from **restrictive breed definitions** and **continued strong desire for extreme phenotypes**
- The central challenge is not whether breeds should *ever* change, but whether **preserving the pure breeding paradigm or aesthetic tradition should take priority over health and welfare**



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Acknowledgements

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Groups

Brachycephalic BWG Working Group

LAGECDogs
Legal Advisory Group on Extreme Conformation in Dogs

Funders

DogsTrust

UFAW Established 1926

BLUE CROSS

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