

Trends in canine genetic diversity in 30 years of pedigree dogs



Aim

The study's aim was to **analyse population data** for all **215 breeds** currently recognised by the UK Kennel Club **between 1980 and 2014** to **determine trends in registration, rate of loss of genetic diversity, degree of inbreeding and popular sire usage.**

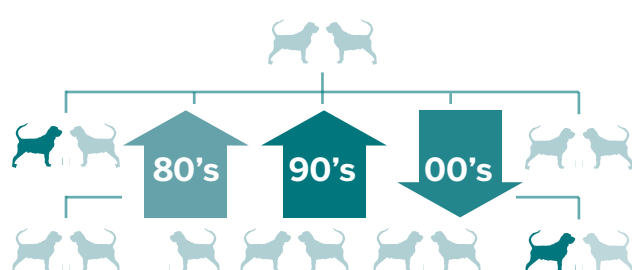


Data and method

All **electronic pedigree information held by the Kennel Club** was used to **calculate inbreeding coefficients for every registered individual born from 1980 to 2014.** The rate of change of average inbreeding coefficient per breed (**rate of inbreeding**) describes the rate of **loss of genetic diversity** over this period.

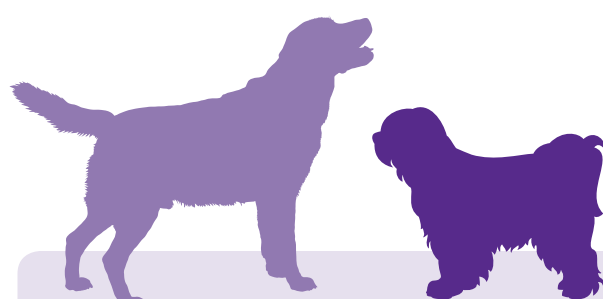


The findings



Across all breeds the rate of **inbreeding appeared highest in the 1980's and 1990's.**

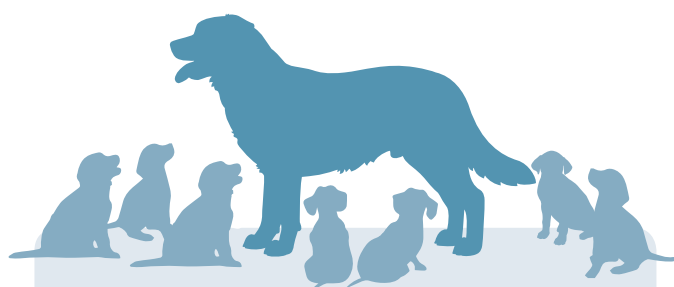
The degree of inbreeding tended to **decline after 2000.**



This trend occurred in **both popular and rarer breeds**, although it was **more pronounced in rarer breeds.**



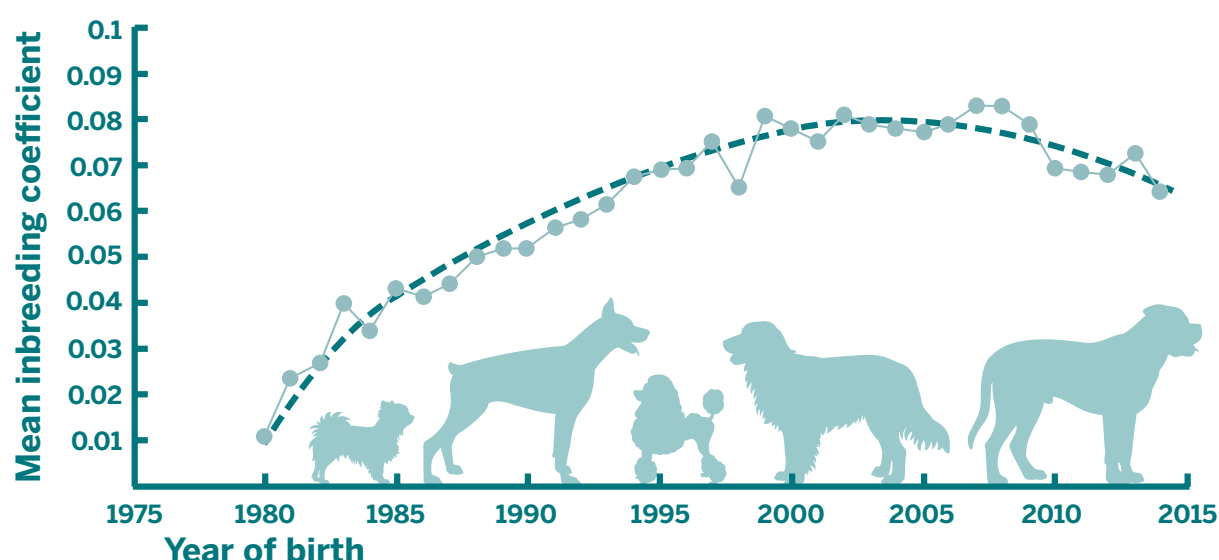
Rates of inbreeding **appears not to correlate with population size.**



The **use of popular sires** was **apparent in all breeds** and is likely to be the **biggest contribution to inbreeding.**

Conclusions

A **large decline in breed genetic diversity** occurred in the **1980's and 1990's.** However, since the turn of the century, the general trend is that **the rate of inbreeding has slowed drastically,** implying that **many breeds** may be seeing some **replenishment of genetic diversity.**



Goal for breed management

To **manage genetic diversity** within the breed to **maximise the variety of healthy and desirable dogs within the gene pool.** It is not necessary to use all dogs in the population (especially those with undesirable traits). **Health, genetic diversity and good husbandry** must work together in balance.



For more information



THE KENNEL CLUB
DOG HEALTH

The full research paper, *Trends in genetic diversity for all Kennel Club registered pedigree dog breeds* - www.cgejournal.org

Individual breed reports - <http://tinyurl.com/ohemgos>

For any questions or queries please e-mail: mateselect@thekennelclub.org.uk

