

**Table S1** Genetic diversity of the Lundehund in comparison to other breeds genotyped on the Illumina Canine High Density Beadchip. The mean minor allele frequency (MAF) over all 133,715 SNPs analysed, the proportion of informative markers (MAF > 0.05), the mean number of informative marker, the fixation index  $F_{IS}$  and the observed ( $H_o$ ) and expected ( $H_e$ ) heterozygosity are given.

| Breed                      | Mean MAF | Proportion of informative SNPs | Number of informative SNPs | $F_{IS}$ | $H_o$ | $H_e$ |
|----------------------------|----------|--------------------------------|----------------------------|----------|-------|-------|
| Appenzell Mountain Dog     | 0.14     | 0.55                           | 73,772                     | 0.45     | 0.20  | 0.24  |
| Bernese Mountain Dog       | 0.16     | 0.69                           | 92,402                     | 0.27     | 0.26  | 0.26  |
| Dalmatian                  | 0.18     | 0.75                           | 100,661                    | 0.20     | 0.29  | 0.30  |
| English Cocker Spaniel     | 0.18     | 0.73                           | 98,111                     | 0.31     | 0.25  | 0.30  |
| English Springer Spaniel   | 0.19     | 0.73                           | 98,167                     | 0.17     | 0.30  | 0.31  |
| Entlebuch Mountain Dog     | 0.15     | 0.58                           | 77,357                     | 0.38     | 0.23  | 0.26  |
| German Pinscher            | 0.17     | 0.68                           | 91,312                     | 0.27     | 0.26  | 0.28  |
| German Wirehaired Pointer  | 0.20     | 0.81                           | 108,121                    | 0.13     | 0.31  | 0.32  |
| Great Dane                 | 0.17     | 0.67                           | 89,925                     | 0.18     | 0.30  | 0.28  |
| Greater Swiss Mountain Dog | 0.15     | 0.58                           | 78,849                     | 0.38     | 0.22  | 0.26  |
| Great Pyrenees             | 0.19     | 0.77                           | 103,363                    | 0.18     | 0.30  | 0.31  |
| Kuvasz                     | 0.20     | 0.80                           | 106,447                    | 0.11     | 0.33  | 0.32  |
| Lundehund                  | 0.03     | 0.11                           | 15,344                     | 0.87     | 0.05  | 0.05  |
| Parson Russell Terrier     | 0.22     | 0.89                           | 119,474                    | 0.05     | 0.35  | 0.34  |
| PON                        | 0.17     | 0.65                           | 86,665                     | 0.26     | 0.27  | 0.28  |
| Across-breed               | 0.17     | 1.00                           | 133,715                    | 0.22     | 0.28  | 0.28  |