20. **ConserFriesian: Genetic conservation of the Friesian horse breed**

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Genetic diversity is essential for maintaining a healthy population. However, many breeds consist of small population sizes with high inbreeding rates, leading to low genetic diversity. High inbreeding causes expression of genetic disorders threatening the health and welfare of a population. Nowadays, multiple genetic disorders have been discovered in most populations and the number will increase in the future. Selection against all genetic disorders in a population is complex, as it might comprise genetic diversity and thereby increase the risk of novel genetic disorders. To genetically conserve such populations, a roadmap for genetic management is of ultimate importance, providing an optimal balance of selection against multiple genetic disorders and conservation of genetic diversity. The Friesian horse consists of a relatively large population size, but due to severe bottlenecks in the past, this breed is highly inbred and faces low genetic diversity. In addition, the wide scale of genetic disorders known in this breed are threatening the health and genetic future of the Friesian horse. Therefore, a roadmap for genetic management is necessary. This roadmap comprises an inventory of the current status of genetic diversity and genetic disorders known. A breed-specific reference genome will be highly beneficial for an accurate inventory and will aid in identifying causal variants underlying lethal phenotypes. By combining all this genetic information, we will work out a roadmap for genetic management of the Friesian horse population. This roadmap will be implemented in the breeding program of the KFPS studbook to genetically conserve the Friesian horse breed.