

ID1	2,411
Title-case	Development of an easy-to-use and cost effective data registration system for conservation of rare breeds of domestic animals
Commissioner-brief	Stichting Zeldzame Huisdierrassen (The Dutch Rare Breed Survival Trust)
Description of the assignment	<p>90% of the native domestic animal breeds in the Netherlands are at risk. In order to maintain healthy populations with their minimal population sizes it is of great importance to have a reliable registration system. This is needed to monitor the population size and potential inbreeding problems. The main issue with many of the small native breeds is that most of the animals are kept by hobbyists who do not always have the needed knowledge about legislation, the importance of registration and also might have less finances available than the large businesses related to the more commercial breeds.</p> <p>The '<i>Bonte Bentheimer</i>' (BB) is a Dutch rare pig breed, which are often kept with only a couple of animals per farmer. In order to maintain this population and prevent extinction, the necessity of the registration needs to be communicated to the pig owners, as well as an easy-to-use system for the studbook registration needs to be set up. The aim of this assignment is therefore to evaluate the current registration system and find out the most cost efficient and easy-to-use model to register animals in small populations. Furthermore, the aim is to develop a communication plan towards the pig owners about the importance of registration and the positive effect to the future of a rare breed.</p> <p>Tasks and related questions are:</p> <ul style="list-style-type: none"> • Evaluation and optimization of the current studbook registration of small populations, with the BB as test case. <ul style="list-style-type: none"> - What can be learned from other species and breeds? - What is the most efficient way to register animals without individual animal ID? - How can costs be as low as possible for owner and studbook, but with as many possibilities as needed. - How can findings of this assignment be translated towards studbooks of other breeds/species in the future? • (Setting up) Data collection of animal data such as: animal number, parent animals, offspring, breeder and owner. <ul style="list-style-type: none"> - How to convert the methodology into a tool to actually collect the data? - How can data be collected systematically? Who is going to do this? How can owners and breeders contribute / what is expected of them? - Is this tool useful to the owners and breeders? And is it user-friendly? - What data is already available (or what is already being measured) and, if so, how can access be gained? If data is not already being collected, how can this be organised efficiently and effectively? - How can the data subsequently be used to help (persuade) policy makers to develop policy incentives for rare animal breeds conservation at transnational, national and local level? - Housing and breeding of BB pigs is often applied on small-scale and there is a large variety between owners and breeders; How to deal with these (varying) factors / take these factors into account? Which data are relevant? How can the data be compared? How do data relate to each other? Do we have to make a difference between different groups? How to define the different groups / on what basis should groups be divided? • Establish a communication plan to inform pig owners about the legislation and importance of registration for the future of the breed (this will apply to all small scale farmers). <ul style="list-style-type: none"> - How to involve pig farmers and create goodwill to continue thinking and working together for collection and registration of animal data? - Do you need different ways, video, articles, visits, symposia, for the different type of pig owners?
Background	<p>The Dutch Rare Breed Foundation (in Dutch: Stichting Zeldzame Huisdierrassen: SZH) is committed to support the Dutch rare breeds of farm animals. Those breeds have a long history in the Netherlands and used to be the main production animals. Due to modernisation and the introduction of many foreign breeds the original Dutch farm animals rapidly decreased in numbers. The SZH support and advise the breeding organisations on education, breeding, communication and many other topics. The SZH works closely with Centre for Genetic Resources the Netherlands (CGN). They analyse populations, based on known registration, and use this information to advise breeding organizations about their future breeding programme.</p> <p>In order to evaluate a population, you need reliable data about the current animals, their ancestors and for example known heritable diseases. For pigs there is no law on individual animal ID's, they are registered per farm, which makes it impossible to analyse the individual background. The current system of the studbook registration of BB is based only on the looks, with pictures of the black spots. In practise, this does not work. Furthermore, a lot of owners are afraid of the legislation about pigs in the Netherlands. Even though it would be safer to register your animals, it is hard for owners to change their mind and trust the system.</p>

	<p>The '<i>Bonte Bentheimer</i>' (BB) is a Dutch rare pig breed, popular with hobbyists or for used for nature management, often with only a couple of animals kept per farmer. The owners do not always know, or want to follow, the laws of pig registration, and might think that registration is too difficult or too expensive. With only 80 breeding females registered in 2017 and a rate of inbreeding far above the critical value set by the FAO (FAO, 2017) a good registration is crucial for the future of this breed</p> <p>In order to maintain this population and prevent extinction, the necessity of the registration needs to be communicated to the pig owners, as well as an easy-to-use system for the studbook registration needs to be set up.</p> <p>When an easy-to-use and cost effective way to register and keep a studbook for a (very) small population is found, this would bring opportunities for other species and breeds, beside the BB, as well. In this way this project can be seen as a special registration system for rare breeds of domestic animals, based on a test case with BB.</p>
Literature	<ul style="list-style-type: none"> • FAO, 2017. http://www.fao.org/3/a-i3327e.pdf • CGN Rapport 37 (2017). Varkensrassen in de genenbank. https://edepot.wur.nl/423162 • CGN Rapport 28 (2013). Advies voor genetisch beheer van de Bonte Bentheimer populatie in Nederland (https://edepot.wur.nl/279896) • Rassenlijst CGN: https://www.wur.nl/upload_mm/0/9/f/9c59e477-f575-4f37-a30d-081877a76221_201909%20-%20Status%20NL%20landbouwhuisdierrassen%20-%20def.pdf • Vereniging het Nederlandse Bonte Bentheimer Landvarken. https://bontebentheimer.nl/ • www.szh.nl
Confidential	YES
Required expertise	<p>Population conservation (MAS, MBI, MFN) Animal breeding and genetics (MAS, MBI) Data management and logistics (MAB\MBE, MBF) Bioinformatics resources analysis (MAB, MBF, MBI) Consumer expectations (MME) Societal engagement (MID, MFN) Business economics (MME)</p> <p>At least two Dutch speaking students are required.</p>
Specialisation: this is indicative, not required!	<p>MAB - Information Technology; MAB - Operations Research and Logistics; MAS - Animal Ecology; MAS - Genetics and Biodiversity; MBF - Bioinformatics; MBF - Systems Biology; MBI - Conservation and Systems Ecology; MBI - Ecology and Biodiversity; MCH - Communication and Innovation; MFN - Ecology; MFN - Policy and Society; MFN - Management; MID - Inclusive Innovation, Communication and Development; MID - Sociology of Development; MME - Consumer Studies; MME - Management in Life Sciences</p>
Commissioner-extended	<p>Stichting Zeldzame Huisdierrassen Gebouw De Valk, kamer 070 Dreijenlaan 2 6703 HA Wageningen</p> <p><i>Contact person:</i> Mira Schoon, Policy and Breeding Advisor E: mira.schoon@szh.nl T: 06 1255 1049</p> <p>In close collaboration with: - <i>Vereniging het Nederlandse Bonte Bentheimer Landvarken</i> - <i>Centrum voor Genetische bronnen Nederland</i></p>
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Academic advisor	To be assigned
Period-available	19/20-p34