

In situ conservation of animal genetic resources in the Czech Republic

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Conservation programs are mostly depending on countries' agricultural and livestock development policies. In the Czech Republic, the need to save the remaining heritage breeds which have been largely and systematically replaced or “improved” in accordance with former state breeding policy raised at the turn of 80's and 90's of the passed century. The first formal effort has been made in the frame of a research project launched in 1994. The main project output i.e. breeds inventory and identification of conservation needs lead in recognition of national “gene reserve breeds” by law (the Breeding Act) and follow-up support for working out relevant management plans for that breeds and populations.

In situ conservation has been recognized as the most appropriate way, not only because of lacking ex-situ conservation capacities – the objective was to proceed in sustainable breed's development. Rationale of the project, however, was to save maximum of original genes within remaining gene pools which are carriers of breeds specific traits and features. There was also evident that a possibility to effectively utilize these breeds in common production systems was rather low so that a support to potential breeders was needed. Such support was negotiated in the frame of existing agricultural supporting scheme, as incentive payments. Headage payment rates were set up so to cover revenue losses due to lower performance of that breeds.

The multiyear conservation project was approved by the Ministry of agriculture and the Institute of Animal Science in Prague – Uhrineves designated for its implementation. Project activities grew in, more original populations being stabilized in a way that a regular breeding and selection plan could be set into operation (e.g. two cold-blooded horse breeds, one sheep breed), and evolved stepwise into regular National program. In 2006 that has been arched over by a correspondent amendment of the Breeding Act and corresponding Directives.

Institute of Animal Science was qualified as the National Reference Centre for Conservation of Farm Animal Genetic Resources. The National Centre is member of the European Regional Focal Point for Animal Genetic Resources (ERFP).

In 2008 two cattle, two sheep, two goat breeds, one pig and four horse breeds, but also seven rabbit, three nutria and two poultry breeds, as well as seven freshwater fish species and varieties and one honey-bee breed are enrolled in the National program.

In situ conservation is executed in common production conditions. Conservation system consists in controlled breeding of selected individuals or groups (virtual nucleus) with the aim to conserve specific genetic diversity within the breed. Breeding objectives are set for the period of five years and on the basis of annual evaluation, these are specified or modified according to current population trend and development of given breeds. Detailed procedures in appropriate time and factual stages are set for each breed by management plans which are negotiated and approved by the Council of Genetic Resources. The aim of proposed management plan is in accordance with general breeding purpose of the breed. In some respects it can fall outside the scope of it, being set for selected part of the population (e.g. targeted mating to restrain or improve some traits). Specialists of numerous research institutions are also engaged in the program. For the implementation of management plans (which is decisive precondition for granting the support) is responsible the respective breeding association authorised to keeping the Pedigree Book.

Future development of conserved breeds is however dependent to a great extent on their meaningful utilization. A big challenge both for animal keepers and research community is creation of strategies for their sustainable exploitation and finding production and marketing chance for these breeds.

There are some successful stories.

- Development Centre for breeding and training draught horses arose from current need of highland loggers. They are using the traditional local Silesian Noriker breed developed during the last 100 years for logging and plough tail work. It fits well to increasing environmental concerns provided the appropriate testing, evaluation, selection, breeding and training are executed. At the same

time there is a need to provide special education and training for its users. The Centre has developed and implements currently such a complex program.

- National Agency for Agricultural Research acknowledged necessity of a special research and development supporting utilization of natural and genetic resources. For the 2005 – 2008 period Institute of Animal Science won a grant for developing special dairy products from local goat breeds.
- In 2002, nearly extinct breed of Valachian sheep has been recovered. During the late 80's last century the last flock has been settled to Germany for rescue by initiative of the Pro Specie Rara foundation. Few remaining animals (less than 10) surviving detached in our Beskyd mountains to 2000 was grouped and a recovering project was developed, later in 2004 through cooperation with Pro Specie Rara and SAVE an exchange of breeding groups (about 20 animals) was organized. Now the population counts some 220 heads by about 20 farmers and a new project on renewal of the original grey and black variety through targeted mating and selection has been put in operation.