

Development of modern civilization, followed by aggressive human expansion and industrialization leads to devastating and accelerating rate of wildlife endangerment. In early 20th century, the *Bison bonasus* - European bison (EB) population, had been hunted near extinction. Despite the success of species restoration, the EB is still threatened by low genetic diversity, subspecies impurity and emerging diseases. Even if habitat conservation is the cornerstone of all preservation efforts, the modern biotechnology and cellular technologies provide the tool to rescue genes that would be otherwise lost.

The purpose of this project is to provide with renewable source of cells that serve as a gene pool bank and at the same time the vehicle that facilitate gene flow through generations of bison populations, as diversity of these species is under assault.

Hence, we propose to apply novel cellular technology for preservation of genetic diversity of European bison local subspecies and facilitating reintroduction of genetic material into breeding populations. This cellular technology is based on reprogramming easily accessible somatic cells into pluripotent stem cells (iPSCs). Reprogrammed cells regain the pluripotency state typical of embryonic stem cells and they can indefinitely self-renew. Bison iPSCs will provide infinite source of cells allowing gene pool preservation. Moreover, in future, thanks to the capacity of iPSC cells to differentiate into any cellular type, including gametes, assisted reproduction will become possible.