

*National Rural Development Programme 2014-2022*

*Measure 10.2 – Biodiversity*

*Project: TuBAvI-2 (2021-2024)*

**REPORT ON THE ACTIVITIES PERFORMED DURING THE SECOND YEAR**

***UniPD***

The present report describes the activities performed from May 1<sup>st</sup>, 2022 to April 30, 2023. The activities are described by Action, according to the original programme.

**Action 1 – Phenotypic characterization of autochthonous breeds and species**

During the second year of activities of the project, the sampling of biological material (blood) and the recording of phenotypic characteristics of animals belonging to the following species/breeds have been completed:

- Faraona Camosciata (n = 51)
- Anatra Mignon (n = 55)
- Anatra Germanata Veneta (n = 55)

As regards species/breeds for which difficulties in retrieving animals were encountered during the first year of activities due to very small population size, only 9 individuals of Oca Padovana breed have been sampled (blood collection and phenotypic characterization) so far. Overall, animals belonging to this breed are weak and with impaired reproductive performances, likely because of the high inbreeding level related to the very low population size. Despite this and outbreaks of avian flu which have further slowed down the sampling due to restrictions on access to the conservation centres/farms, the PA UNIPD has planned to complete blood samples collection and recoding of phenotypes on Oca Padovana and Collo Nudo Italiana breeds in June 2023 (for Oca Padovana breed the final sample size is still uncertain because the breed is at risk of extinction).

Table 1 summarises the 2 qualitative phenotypic traits (shank colour and skin colour) recorded on males and females of Faraona Camosciata, Anatra Mignon, Anatra Germanata Veneta e Oca Padovana breeds, and Figure 1 depicts the descriptive statistics (mean and standard deviation) of the 6 quantitative phenotypic traits (live body weight, body length, shank length, shank circumference, sternum circumference, wingspan) measured on the same male and female individuals (for the Oca Padovana breed, results are still partial) (FAO 2012)<sup>2</sup>.

**Action 2 – Genetic characterization of breeds and species reared in Italy**

The genetic analyses will be conducted by an external service and will be performed between June and December 2023. These analyses will focus on DNA extraction from individual blood samples (about 2

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<sup>2</sup> FAO. (2012). Phenotypic characterization of animal genetic resources. FAO Animal Production and Health Guidelines, (11).

mL) collected the same day of phenotyping of animals for qualitative and quantitative characteristics. Blood samples have been added with EDTA at sampling and currently they are stored in tubes at -20°C, awaiting the shipping to the external service (through blood-cards) for the genotyping using SNP molecular markers. After careful review of the scientific literature, the genetic characterization will be performed according to the following approaches:

- for the **Collo Nudo Italiana** and **Millefiori Piemontese** breeds (*Gallus gallus*), the Affymetrix Axiom Chicken 600K HD chip will be used;
- for the **Anatra Mignon** and **Anatra Germanata Veneta** breeds (*Anas platyrhynchos*), low-coverage whole genome sequencing will be used (4X coverage);
- for the **Oca Padovana** breed (*Anser anser*), low-coverage whole genome sequencing will be used (4X coverage);
- for the **Faraona Camosciata** breed (*Numida meleagris*), low-coverage whole genome sequencing will be used (4X coverage).

## FIGURES AND TABLES

**Table 1 – Shank colour and skin colour of animals sampled until April 30, 2023**

Breed	Sex	N° animals	Shanks colour	Skin colour
Faraona Camosciata	Male	25	Dark orange	Grey
	Female	26	Brown	Grey
Anatra Mignon	Male	12	Orange	White
	Female	43	Orange	White
Anatra Germanata Veneta	Male	14	Orange	White
	Female	41	Orange	White
Oca Padovana <i>(results are still partial)</i>	Male	3	Orange	White
	Female	6	Orange	White

**Figure 1 – Mean and standard deviation of quantitative phenotypic traits by breed and sex of animals sampled until April 30, 2023 (for Oca Padovana breed, results are still partial).**

