CONTROL OF *Coypus* (MYOCASTOR COYPUS)

THROUGH SURGICAL STERILIZATION: CLINICAL AND SURGICAL TESTING AND FIRST RESULTS

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NUTRIA IN NATURA

Generally, for numerical control of Coypu (Myocastor coypus), a highly territorial and social rodent and an invasive species outside its natural range, euthanasia and firearms are used. ISPRA (Istituto Superiore per la Ricerca Ambientale) identifies the first as the best method to control the species. However, to control other invasive species of terrestrial vertebrates (canids, felids and rodents) surgical or chemical sterilization were used.
On the assumption that sterilized breeding coypus will continue to defend their territory in competition for partners, food and space with fertile individuals,in 2009 it started a project to monitor urban and suburban populations of this species. This alternative to killing with firearms or euthanasia can result in a method of containment of the species with low environmental impact (drastically reducing disturb to the "unproblematic wildlife") and emotionally and morally acceptable by the more sensitive public.

STUDY AREA
The study areas chosen for the experiment are located in the urban and suburban town of Buccinasco (near Milan, Northern Italy).

CAPTURE, ANAESTESHIA, GENERAL CHECK-UP AND PREPARATION
The coypus in the study area were censused by direct count and trapped using cage traps (100 × 45 × 45 cm) baited with food (vegetables and fruit). Immediately after capture, individuals were sedated and transferred to a facility equipped veterinary clinic for surgery. The animals were left in the cage trap for an observation period of at least 4 hours, during which the animals were monitored and fed.

COYPUS IN CAGE

COYPUS ON X RAY TABLE

COYPUS IN SEDATION

THORAX RADIOGRAM

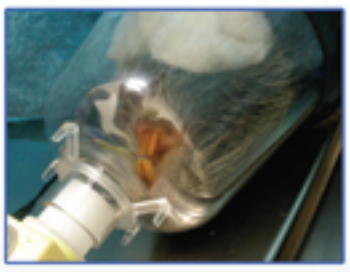
Induction of anaesthesia was performed with intramuscular injection (containing a tranquillizer, an anaesthetic, a hypnotic drug and a morphinic drug), made through the cage trap to avoid manipulation. Once sedation was obtained, inhalation anaesthesia was practiced, to get the achievement of the planned surgical analgesia.
Biometrics were then collected (sex, weight, trunk length and state of dentition) and morphological (coat colour and distinguishing marks) and the animals were carefully visited (temperature, heart rate, state of nutrition and hydration, appearance and size of liver, kidney, spleen and bladder) and blood (leptospirosis, cell morphology) and urine (cystocentesis) were sampled.
The coypus were also ear-tagged in order to carry out ongoing quantitative research about implications of sterilization and its possible role in modifications of their ecology and behaviour.
In preparation for surgery, a strip of about 15 cm of hair was shaved along the linea alba with the umbilical scar in the center.

IMAGE OF ECHOCARDIOGRAPHY

ULTRASOUND IMAGE OF LIVER AND GALLBLADER

ULTRASOUND EXAM

SURGERY
The animal was placed flat on its back and its limbs tied to the operating table. Anaesthesia was monitored by a multiparameter monitor that detects ECG, heart rate, respiratory rate, oxygen saturation, capnography, temperature.
For females, surgery consisted in bilateral oophorectomy or ovariohysterectomy in case they were found to be pregnant. Celiotomy is practised from the umbilical region towards the head. Ovaries (3-4 mm), located deeply and caudally in relation to the kidneys in the dorsal part of the thoracic cage, shall be removed completely. Stitching involves three suture plans and the use of reabsorbing catgut.
For males, surgery consisted in orchiectomy in the inguinal region (castration). In order to pick out the testes it is necessary to press gently the inguinal channel outwards. Skin incisions (2 cm) are done along both sides of penis and the testes pushed out. Incisions are done in the vaginal sheaths to extract the testes. Then, the solar plexus the spermatic cord are tied together with a stitch and the testes excised. Finally, the cut is closed by stitching cutis and subcutis.



INHALATION ANESTHESIA

ENDOVENOUS LINE IN CEFHALIC VEIN

LIBERATION

AWAKENING AND RELEASE
Awakenings were very fast and quiet and the animals resumed to eat immediately after surgery. We found no perioperative complications. The operation can be performed without difficulty by a skilled veterinary surgeon and the postoperative hospital stay of 3 days is not difficult to manage. Cages are necessary for a proper postoperative hospitalization.
Preliminary qualitative observations of the specimens released after the surgical intervention, showed that their behaviour is seemingly not altered in relation to the standard eco-ethology of the species.

Convegno Internazionale FAUNA PROBLEMATICA
3-4-5 febbraio 2011 Genazzano, ROMA