

**February 15-17, 2017: ACC&D Think Tank on Ethical Decision-Making in  
Innovation for Animal Welfare**

**Field trial of marking and visual ID in dogs: a Think Tank case study**

Background: ACC&D seeks a method to mark and identify free-roaming dogs and cats treated with non-surgical fertility control. A field-ready method should not require general anesthesia, precluding marking strategies (ear notch, ear tip) commonly used with surgical sterilization. A Think Tank, collaboration with Cornell University, and other activities led to design of a prototype ear tag.

A Cornell DVM student trialed the prototype in dogs in a Romanian shelter, applying during spay/neuter surgery. ACC&D sponsored a small study in indoor/outdoor pet cats, also anesthetized (for dental work) for application. Results were promising and yielded tangible strategies to address problems in previous studies (fastener failure, curling of the fabric tag).

Study rationale: We needed to know if the tag can be applied humanely without general anesthesia or sedation, and if the tag is feasible, safe, visible, and retained in-field. We sought opportunities where dogs 1) could be monitored, 2) could receive vet care for adverse reactions, 3) could individually benefit from the procedure (versus it benefitting only future dogs), and 4) would not be placed at undue risk if the tag failed (i.e., avoiding places where evidence of vaccination is literally life-saving).

We selected the Laikipia Rabies Vaccination Campaign (LRVC), in Kenya, from among several strong partners. For purposes of evaluating a tag, rabies vaccination is a useful proxy for contraception in free-roaming dogs. Volunteer and government veterinarians, with engagement from student volunteers and community members, vaccinated dogs on Maasai and Samburu pastoralist group ranches. The campaign was motivated by human rabies deaths in these communities, including that of a research assistant at the preeminent Mpala Research Centre.

Key reasons for partnering with this initiative and choosing this location included: 1) the LRVC coordinator's affiliation with the Smithsonian Institution and commitment to data collection; 2) we were introduced to LRVC by a Cornell funder of the tag prototype design, and a prospect for continued support; 3) the Laikipia landscape would test tag durability; 4) we could affordably hire a vet to monitor tagged dogs for 2 months and provide basic care to community dogs; 5) Valerie worked in LRVC communities for her master's research;

6) the LRVC coordinator planned to identify vaccinated dogs with a clamp tattoo as part of longer-term demographic research, meaning that the ear tag could spare individual animals the tattoo, while also yielding data for ACC&D.

The Smithsonian IACUC approved the study to tag 100 dogs and monitor retention over 18 months. The Smithsonian IRB waived review due to this being considered a veterinary procedure.

Community engagement/dog selection: The LRVC took place at group ranches whose chief/elders approved the initiative. Community liaisons hired for LRVC informed fellow residents about the campaign. Rabies vaccination (which also included dewormer and a vitamin injection) was voluntary when people brought their dogs to central point locations, though community members also picked up roaming dogs for vaccination without owner/guardian approval. ACC&D does not know how consent was handled when LRVC team members did door-to-door vaccination.

ACC&D printed informational (not promotional) fliers in Maasai and Kiswahili to be distributed pre-campaign. We do not know how many dog owners received fliers, and whether flier recipients had dogs who were ultimately tagged. A trilingual LRVC employee had a script for dog owners at the campaign, and verbal vs. written approval was sought. Owners were approached if their dog was deemed a good candidate for tagging (if s/he handled rabies vaccination, dewormer, vitamin injection, and handling stoically), but some owners also requested an ear tag.

Key relevant outcomes: Four dogs received tags; tagging was aborted in two others. The study was halted due to welfare concerns. Dogs exhibited brief but acute indicators of pain (returning to normal behavior [no ear rubbing or head shaking] within a couple minutes of tagging). The topical anesthetic appeared to exacerbate distress without preventing pain. ACC&D employed a veterinarian for two months to monitor tagged dogs and provide basic veterinary care to additional community dogs.

Ethical questions and challenges: The study, both in its design and the field-based particulars, presented ethical complexities that could be applicable to other studies and contexts. Below are a few challenges that emerged, and some explanation of how we responded. The points below do not necessarily capture the entirety of ethical questions surrounding the study, and we welcome input on questions or challenges that come to mind for you.

- **What are benefits to individual animals?** In this particular scenario, we felt that a veterinarian's presence for two months was a benefit for community dogs who would otherwise not receive veterinary care. Perhaps more significantly, however,

the LRVC coordinator was excited about tagging as a more humane alternative to the clamp tattoo (and study protocol stipulated increasing numbers of dogs receiving ear tags and microchips in lieu of tattoos if tagging proved more humane). Over time, the researcher's plans shifted to postpone marking all dogs until the following year in hopes that the tag could replace a tattoo. Upon Valerie's arrival in Kenya, plans for marking dogs for research were dropped, meaning that the tag would not spare dogs in this study or other dogs in this community the presumably more painful tattoo. It caused ACC&D to rethink the ethics of trialing the tag in this community; we ultimately settled on proceeding with tagging but lowering the threshold for stopping due to pain.

- **What does the pain/distress of the intervention demonstrate to the community?** The dog handling for vaccinations was surprisingly substandard, and it put dogs and people at risk. Owners watched “experts” model or approve of inhumane treatment, which raises questions about influence on community members' views on appropriate or humane treatment of their dogs. For ear tagging Val recruited two veterinarians who treated dogs humanely, but the ear tagging—which itself yielded an acute reaction from otherwise placid dogs—also demonstrated that experts were causing dogs significant pain. This speaks to the human behavior component of interventions and raises questions about related ethical obligations.
- **What is the appropriate way to accommodate owner requests (in/outside of a research context) and account for human behavior?** Several owners requested a tag for a dog who did not meet behavioral criteria set forth in the protocol. These owners were offered the option of microchipping their dog to try to avoid the dog being punished for his/her behavior (all said “yes” to a microchip). One owner whose dog was denied an ear tag due to behavior (the dog received a microchip) cut/notched the dog's ear soon after. The details of the situation suggest that denying her dog an ear tag directly or indirectly led this owner to “mark” her animal. Broadly speaking, the situation raises questions of what obligation we have regarding granting owner wishes—both in a research context, and within the context of an individual dog's welfare.
- **How much pain/distress is acceptable for a “greater good”?** Assuming that the tag were durable and reliable, an argument could be made that transient pain is acceptable for something providing protection against, e.g., culling. What level of pain/distress would be acceptable? Is there a universal threshold, or would it be context-dependent?
- **Who are appropriate test subjects?** The first trial of this ear tag prototype occurred in a Romanian dog shelter outside ACC&D auspices. The second trial took place on owned cats in Illinois. Both studies indicated that the tag was humane and well tolerated following application, raising the crucial question of application on a

conscious or sedated (vs. anesthetized) animal. This presented practical limitations for a U.S. study, and we wrestled with whether it was ethical for the first attempt to be with dogs in Kenya. We ultimately decided that while not ideal, the context-specific benefits to this canine cohort (e.g., sparing them an ear tattoo, providing veterinary care) and broader populations of free-roaming dogs could justify this choice.