Light at the end of the tunnel
Dear Fellow Advocates, Supporters, and Innovators,

We are pleased to share ACC&D’s recent work with you in the pages of this biennial report. As is no doubt true for many of our supporters and partners, we will long remember 2020 as the year of COVID-19. The last 12 months presented unplanned challenges to advancing our work, as well as unexpected opportunities for non-surgical fertility control to fill a void as COVID-19 temporarily shuttered spay/neuter clinics around the globe. In a field where “It’s a marathon, not a sprint” is a common refrain, we were particularly pleased to offer immediate support and resources to veterinarians and spay/neuter programs seeking to serve human and animal clients in unprecedented circumstances.

We extend our sincere thanks to the many partners and supporters who helped advance our work through their financial donations, expertise, and commitment to ACC&D’s mission. We also wish to highlight the International Advisory Board (IAB), which was established in 2020 to better reflect and support the global scope of our mission. We invite you to “meet” our eight IAB members on page 17. We are honored to have them join the array of expert volunteer advisors on ACC&D’s team!

The sustained promise of a new sterilant technology in test through the pandemic looks to us like a light at the end of a tunnel; the collaborations among many partners to bring a temporary contraceptive into the light as an emergency measure provided a bit of light along the way.

Thank you for supporting innovation!

Joyce Briggs
ACC&D President

Elly Hiby
Chair, ACC&D Board of Directors
The Path to a Permanent Injectable Sterilant
Gene Transfer Continues to Show Promise

ACC&D’s 2018 Symposium highlighted one particularly promising approach to sterilize cats and dogs without surgery: gene transfer. Researchers presented on work underway, and the keynote address offered delegates a glimpse into how gene transfer breakthroughs have both improved and saved human lives.

Thanks in large part to support from the Michelson Found Animals Foundation, which has committed $75 million to develop a permanent non-surgical sterilant for cats and dogs, there was even more reason to be optimistic at the close of 2020. Based on positive results from a one-year study with a single-dose injection, researchers entered a second-year breeding trial in female cats. Evaluating whether a gene transfer treatment results in permanent sterility requires patience and a multi-year breeding trial; each time animals fail to become pregnant, we get one step closer to a viable product.

ACC&D Board members and staff have been working behind the scenes to support this novel approach to fertility control for companion animals and chart a path to regulatory approval. The science is best left to the scientists leading the studies, but we know that the ultimate value of the technology to veterinary medicine and animal welfare will depend on consumer acceptance. To that end, ACC&D has been developing communication strategies and market analyses for a future product introduction. Our work in this area will ramp up further in 2021 pending COVID restraints.

Project Contributors and Volunteers

- **Thomas Conlon, PhD,** Michelson Prize & Grants
- **Becky Cyr, MA,** Michelson Prize & Grants
- **Jason Delborne, PhD,** College of Natural Resources, North Carolina State University
- **Kevin Morris, PhD,** Institute for Human-Animal Connection, University of Denver; Michelson Prize and Grants; ACC&D Board
- **Linda Rhodes, VMD, PhD,** Independent Consultant; Michelson Prize and Grants; ACC&D Board
- **Richard Surosky, PhD,** Sangamo Therapeutics
A Cat Contraceptive ‘Band Aid’

In early 2020, as it became clear that COVID-19 would have an outsized impact in the United States and around the world, ACC&D recognized two ways to immediately and uniquely support the animal welfare community as it experienced unprecedented challenges.

With the guidance of numerous experts, we revisited how short-term use of the oral contraceptive megestrol acetate (MA) could be an asset as many clinics temporarily closed their doors to spay/neuter surgery. We then provided resources and guidance to the animal welfare and veterinary fields on how to use MA as safely as possible.

Approved for feline contraception in many countries, MA poses a risk of medical complications when used at high doses or for extended periods. This has harmed its reputation. But COVID-19, and other circumstances that temporarily restrict spay/neuter surgery, don’t require that MA replace surgery. This raised important questions: as a short-term, emergency stopgap measure, is it safe? Is it effective? More broadly, COVID-19 prompted us to reflect on the cost-benefit of “imperfect” solutions amidst different circumstances.

We created comprehensive resources for animal welfare and veterinary professionals on low-dose, short-term MA use, and offered multiple well-attended webinars on the same subject. In a short time period, we were working with national animal welfare organizations (The HSUS, ASPCA, and Alley Cat Allies); veterinary agencies including the Association of Shelter Veterinarians and American College of Theriogenology; and compounding pharmacies to share information and support access to MA for those seeking to use it.
In summer 2020, we conducted a survey for veterinarians, shelter professionals, and pet owners to collect data on MA use during the first months of the pandemic. Though we learned that there was limited use of MA, attributed to a range of factors, the initiative helped shelters in placing not-yet-sterilized cats as well as some colony caregivers; many other professionals cited it as something they would consider for the future if circumstances warranted. The project reflected ACC&D’s strength as a scientifically driven convener of experts, field practitioners, and scientists. Moving forward, the resources now available will be an asset for situations, pandemic-related or not, where a “spay delay” of up to six months reduces access to spay/neuter surgery.

**Computer Simulation of the COVID Impact on Cat Colonies**

The halt in spay/neuter surgery prompted concerns about a subsequent rise in unwanted puppies and kittens. Trap-neuter-return programs in the United States felt a particularly acute fear, as the start of the pandemic coincided with our “kitten season.”

We adapted our computer simulation model to answer the question of what computer modeling can tell us about what to expect from a TNR sterilization gap. Namely, how much will your efforts backslide due to COVID-19? The results were both encouraging and thought provoking, and they offered guidance on how programs could be most successful when resuming TNR. We shared results in a short video and also convened a panel to discuss findings and implications for community cat advocates.

**Project Contributors and Volunteers**

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- **Michael Greenberg, DVM**, Boehringer Ingelheim Animal Health Strategic Partnerships
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- **Stacy LeBaron, MS**, Community Cats Podcast
- **Julie Levy, PhD, DACVIM, DABVP**, University of Florida College of Veterinary Medicine
- **Phil Miller, PhD**, Conservation Planning Specialist Group, Species Survival Commission, IUCN
- **Margaret Slater, DVM, PhD**, ASPCA® Strategy & Research
- **Peter Wolf, MS**, Best Friends Animal Society
Even with the knowledge accrued about how to effectively manage free-roaming cats, there remains a great deal that we don’t know. There is limited information on how to get the best return on investment with population management, for example, or how to prevent the greatest number of deaths among cats and kittens when conducting a management campaign. This leaves animal welfare professionals and policymakers without the tools to maximize their impact. Biologically detailed computer modeling technology that accurately reflects the “real world” can fill knowledge gaps and improve the outcomes of efforts to humanely manage cat populations.

In 2019-20, ACC&D continued our collaboration with a diverse group of experts (in cats, wildlife biology, conservation, veterinary medicine, economics, and modeling) on a bioeconomic model. The results revealed an important new lens through which to view population management, leading to a peer-reviewed publication on how to minimize the number of preventable cat and kitten deaths while undertaking a management campaign. With over 16,000 views to date, it is the most-read article in the special issue “Sustaining Innovation in Compassionate Free-Roaming Cat Management Across the Globe: A Decadal Reappraisal of the Practice and Promise of TNVR.” The article, and its user-friendly companion story map, are must-reads for those interested in both reducing numbers of free-roaming cats and what happens to animals in the process.

We are now preparing to publish our penultimate research and learning from the bioeconomic model, which calculates projected cat population numbers and costs associated with different management interventions involving sterilization and/or removal with either adoption and/or euthanasia outcomes, over a 10-year period. The manuscript is currently undergoing peer review with an open-access journal. Our goal in this paper is to help policymakers evaluate and balance population impact and cost as they navigate challenging questions about free-roaming cats in their communities.
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- John Boone, PhD, Great Basin Bird Observatory; HSI/HSUS; ACC&D Board of Directors
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- Margaret Slater, DVM, PhD, ASPCA® Strategy & Research
- Christopher Slootmaker, PhD, Mountain Data Group
- Steve Zawistowski, PhD, the ASPCA® (emeritus), Hunter College

Credit: Valerie Benka

Credit: Karen Green
ACC&D is committed to ensuring that non-surgical fertility control technologies are a valuable addition in “real world” scenarios—in pets, in free-roaming animals, and in shelters. For this to happen, there must be a permanent way to know which animals have received treatment—especially if the treatment doesn’t require anesthesia (required for an ear tip/notch or traditional tattoo) or change an animal’s appearance (like surgical castration).

Developing a humane method of identification is one of ACC&D’s multi-year Flagship Initiatives. We are pleased to report that our partnership over the past year with the Georgia Institute of Technology’s School of Chemical and Biomolecular Engineering has yielded good results!
We are working with Georgia Tech to develop a microneedle patch tattoo that painlessly delivers visible and/or ultraviolet light-reactive ink to a dog or cat’s ear. Use of varied ink colors, symbols, or numbers would make it possible to convey not only information about fertility control treatment and timing, but also information about other treatments, such as rabies vaccination.

To date we have completed pilots with owned pets, evaluating application variables (comfort, ease) and tattoo duration and visibility. The findings make us optimistic that this could be a valuable tool for conscious animals that require permanent identification. We closed 2020 working to refine the application tool, and we anticipate a study in a cohort of free-roaming animals by the end of 2021.

What are microneedle patches?
Microneedle patches are small patches with even smaller needles – as many as 100 needles in a 1cm square patch. When the patch is pressed onto the skin, an adhesive makes the patch stick to the skin temporarily, during which time the microneedles dissolve. To date, microneedles have successfully delivered vaccine (including rabies vaccine to dogs); we are adapting the technology to deliver tattoo ink.

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• Amy Fischer, PhD, University of Illinois Department of Animal Sciences; ACC&D Scientific Advisory Board
• Paul Havel, JD, intellectual property attorney
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• G. Robert Weedon, DVM, MPH, University of Illinois College of Veterinary Medicine Shelter Medicine (retired); ACC&D Board member
Exploring Health Impacts of Surgical Spay/Neuter

Using Data to Help Evaluate Future Non-Surgical Technologies

ACC&D seeks quality data not only on the health impacts of non-surgical fertility control, but also on those of traditional surgery. One of our newest initiatives works to evaluate the latter. This work will contribute important information to the animal health field, and it will also provide a better basis against which to compare future non-surgical technologies.

Surgical sterilization has long been presented as the “gold standard.” Not only does it prevent unwanted puppies and kittens, but it can also reduce unwanted behaviors linked to sex hormones and reduce or completely eliminate the probability of certain diseases. However, particularly in recent years, the animal health field has begun to question if it is in fact in the best interest of individual animals, especially dogs, to be spayed or neutered, and if they are, at what age. This is primarily based on findings of increased incidence of certain diseases or health conditions in surgically sterilized dogs.

Much of the data prompting this question are limited by the fact that they look at specific breeds, or they use medical records from specialty hospitals. We can’t assume that a Yorkie/beagle/pug mix, for example, has the same risk factors for developing certain diseases as a Golden Retriever. And veterinary specialists will see more complex medical conditions because they are just that: veterinary specialists.

ACC&D has cultivated a partnership with Banfield Pet Hospital®, a primary care practice with a wide range of canine patients, for data to analyze. We have teamed up with the University of Michigan’s Statistics in the Community (STATCOM), comprised primarily of Department of Biostatistics graduate students and professors, who are generously volunteering their time and talent to the project. We’ve worked together to identify a viable research question for the fuller analysis, and for an initial pilot study exploring associations between obesity and spay/neuter surgery in a cohort of more than 220,000 dogs with nearly 3.6 million visits to a Banfield Pet Hospital® in the United States. We aim to publish and share these data in 2021.
Project Contributors and Volunteers

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- Mike Yang, BVM, MS, Banfield Pet Hospital Data Analytics
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ACC&D faced ethical questions as we designed field studies to evaluate a contraceptive vaccine in female cats and methods to mark and identify non-surgically sterilized animals. Trying to work through them with thought and care, we were surprised by the dearth of resources available. We discovered that we were not alone; limited support in working through ethical questions is felt by many in the animal welfare and veterinary fields.

In response, we convened experts from multiple disciplines and regions of the world in a 2017 Think Tank to strategize how to address the gaps in resources. One recommendation was to create interactive guidance materials for veterinarians, shelters, and animal welfare organizations and practitioners doing work in field settings. We got to work, and in 2019 published Ethical decision-making: Practical guidance & toolkits on ethical decision-making and considerations for field projects targeting dogs and cats. Experts contributed materials addressing ethical review, conducting research and data collection, cultural competency, consent and permission, and community engagement, as well as case studies to bring these topics to life. The free interactive publication is available here. The resource is currently being used and promoted in veterinary programs and animal welfare NGOs in the United States, Australia, Denmark, and the UK.

This work helped us prepare for our first microneedle patch tattoo study, convening an ethical review committee bringing backgrounds in ethics, veterinary medicine, and animal welfare. We tasked them with challenging our study; asking tough questions to help ensure we could undertake the work with no questions about its ethical propriety. This supplemented the institutional ethical review required by the University of Illinois and Georgia Tech, adding another layer of consideration of the interests of the animals and guardians involved. We profiled this successful project in the guidance document. We encourage other organizations to consider this approach!

The William and Charlotte Parks Foundation was a much-appreciated multi-year funder of our ethics work.
As animal welfare initiatives have moved outside shelter walls and into increasingly direct interaction with the communities we serve, we have come to realize that animal welfare is not only an animal service, but a social service. Animal welfare workers therefore find themselves faced with the kind of challenges social welfare agencies have had for decades – but without the explicit training and preparation needed to help cope with the everyday dilemmas of weighing the impacts of the work we do on the communities we serve. ACC&D’s Ethical Guidance tool helps to bridge this gap by explicitly acknowledging the many unexpected challenges animal welfare teams may face in terms of providing the best support for animals, their guardians and their communities, and providing well-researched tools to help navigate these ethically challenging waters. The ACC&D Ethical Guidance tool is a much-needed resource for animal welfare groups who are driven to innovate, while ensuring maximum benefits for animals and the people who love them.

- Kate Atema, Senior Manager, Strategic Grants Initiatives, PetSmart Charities

“The toolkit provides practical advice for any organization starting to develop ethical review in a scientific field, as well as providing additional guidance for existing ethical review bodies or their equivalent around the world. It is well presented, and an interesting read, so is also strongly recommended as a much-needed ethics training resource.”

- Dr. Penny Hawkins, Head of Research Animals Department, Royal Society for the Prevention of Cruelty to Animals, UK

Project Contributors and Volunteers

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Publications


ACC&D 2019–20 Financials

During the two-year period of 2019-2020, ACC&D had total revenue of $568,074 including a $38,287 SBA PPP loan in 2020 that we expect to be 100% forgiven in 2021. Additional revenue of $529,787 included contributions ($339,131 in donations; $170,000 in pledges for 2021/2022*) and realized investment income of $20,656. Expenditures for 2019-2020 were $557,843.

*Our Council of Stakeholder model involves a 3-year grant commitment whose financial commitment is acknowledged in the year when it is pledged.

For detailed financial information, including our voluntary audit history, we invite you to contact us at info@acc-d.org.

An independent CPA has not conducted an audit or review of these financials.
Thank you, Donors!

ACC&D extends our sincere gratitude to all donors to our cause, and in particular acknowledge the foundations, organizations, and individuals that provided $500 or more in financial support during 2019-2020:

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