

A Roadmap for Collaboration between Animal Rights Advocates and Psychological Scientists

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1. Introduction

The empirical study of animal advocacy research is a relatively new discipline that combines methodologies from the social sciences and related fields to answer questions about the animal protection movement. For example, there are now research-based organizations dedicated to animal advocacy (e.g., [Faunalytics](#)) and some advocacy organizations have their own research teams (e.g., [Mercy For Animals](#)). Outside of these organizations, there's a whole group of independent researchers doing similar work at universities (e.g., [SHARK Lab](#)), many of whom are members of [the PHAIR Society](#). Most importantly, researchers and organizations are increasingly interested in gaining more input from animal advocates. Likewise, advocates are keen to use data to improve and guide their decisions to positively impact animal welfare. Because there is a shared interest to collaborate, we have conducted a collaborative project designed to lay the foundation for future collaborations between psychology researchers and advocates.

Because animal advocates and psychological scientists have shared interests and goals but different backgrounds, skill sets, and resources, there are many advantages to their working together. However, this also brings up complicated issues related to strategy, roles, and ethics. The goal of this project is to generate a model for how advocates and psychological scientists can work together most productively. It includes:

- Definitions and roles of people with different backgrounds and different organizations;
- Strengths and resources associated with these different roles and backgrounds;
- Challenges associated with science/advocacy collaboration; and
- Principles and best practices for advocacy-science collaboration.

2. Roles and Definitions¹

Advocacy

Advocacy is the application of various techniques to advocate for a cause such as protests, volunteering, activism through social media, financial donations, marketing, lobbying, and persuasion aimed at both individual and institutional decision makers. The goal of advocacy is to achieve defined objectives. These objectives and philosophies vary across animal advocacy organizations, but likely pertain to promoting animal rights or wellbeing and/or reducing animal suffering.

Advocate

An advocate is a person who promotes a cause. Advocates will generally use the strategies that they think are most likely to achieve their objective, based on their previous experience,

¹ Please see <https://faunalytics.org/glossary/> for definitions of an extensive list of terms related to advocacy and science.

available research (both informal and formal), as well as their understanding of the issues, audiences and contexts at hand.

Advocacy Organization

An organization whose central mission is (animal) advocacy. Animal advocates have a range of philosophical perspectives and assumptions about the best strategies for promoting animal welfare. They also vary in their activities, which can include outreach, lobbying, investigations, organizing and research. Examples of contemporary animal advocacy organizations are Animal Advocacy Africa, Animal Alliance Asia, Animal Outlook, Farm Sanctuary, Forum Nacional de Proteção e Defesa Animal, Humane Society International, Mercy For Animals, Middle East Vegan Society, ProVeg, People for the Ethical Treatment of Animals, Sinergia Animal International, The Abolitionist Vegan Society, The Animal Legal Defense Fund, The Humane League, The Vegan Society, and Vegetarianos Hoy.

Science

Science is the pursuit and application of knowledge and understanding of the natural and social world following a systematic methodology based on evidence. It is distinguished by rigor, which has to do with an explicit effort to try to understand where the scientist may be wrong. This contrasts with persuasion, in which the focus is trying to convince people of something using whatever means works best. In that sense, science can be distinguished from advocacy, although the premise of this project is that the best advocacy is supported by science, and the most useful science has implications for advocacy. Science includes a number of specific ingredients, including the use of reliable and valid measurement tools, the appropriate use of statistical analysis, qualitative exploration of lived experience and attitudes, open science practices, and peer-review.

Scientist

A scientist is a person who uses scientific methods to study the world in a way that is as objective as possible, and in such a way that their biases are explicitly acknowledged, considered, and mitigated. That means that a scientist should generally accept the results of their studies even if they do not like them, although there are both various biases and ethical considerations that can affect how results are disseminated in practice.

Psychological Scientist

A psychological scientist is a person who applies scientific methods to study human behavior. This encompasses a range of questions and methods (e.g., quantitative and qualitative approaches) and often overlaps with other social sciences (e.g., sociology, political science), humanities (e.g., philosophy, history), and other disciplines (e.g., biology, veterinary medicine).

Scientific Organization

The central mission of a scientific organization is to promote science, both directly and through the training and support of scientists. Universities are examples of scientific organizations. Scientific organizations may also engage in or support advocacy, but this is not their central mission.

Hybrid Organization

The missions of hybrid organizations are supporting, conducting, or promoting research in the domain of advocacy. Examples in the domain of animal advocacy include Animal Charity Evaluators, Bryant Research, Faunalytics, the The Society for the Psychology of Human-Animal Intergroup Relations (PHAIR), and Rethink Priorities.

Internal Advocacy Report

An internal advocacy report is a document that is used within institutions to help organize strategies that maximize effectiveness that may include data. Internal advocacy publications can be distinguished by their unique value to members of a specific organization, and by the fact that they are typically not made available to the public.

Stakeholders Advocacy Report

An advocacy report is a document that is produced by an advocacy organization to share with advocates in the broader movement, but is not designed for the public.

Public Advocacy Publication

A public advocacy publication is a document that is used to promote advocacy in the “gray literature” (e.g., advocacy websites or fliers). It may include data and is often based on or consistent with scientific evidence, but the emphasis is on framing a message that is intended to be maximally effective and persuasive.

Scientific Publication

A scientific publication is a document, typically including data that were used to test explicit hypotheses or detail the findings of observational work, that is published in a peer-reviewed academic journal. Examples from psychology include Anthrozoös, Appetite, the Journal of Personality and Social Psychology, PHAIR, or Society and Animals. Scientific publications can be distinguished by their relative focus on scientific rigor and objectivity.

3. Relative Strengths and Resources

3.1. Advocates and Advocacy Organizations

- *Supporters.* Advocacy organizations typically have large memberships and/or public exposure, giving them the ability to reach a large and passionate audience.
- *Financial Resources.* Animal advocacy organizations have expertise in fundraising and budgets that can be used to promote their work.
- *Knowledge.* Animal advocates have significant experience doing advocacy, so they have good ideas about what is practical, what works best, what advocates want, how to reach them, and - perhaps most importantly to scientists - what are the most pressing scientific questions.
- *Access.* Advocacy organizations can often access data and other resources that would otherwise be difficult to obtain.
- *Passion.* People who work for and follow advocacy organizations typically do so at some level of personal sacrifice because they feel strongly about the cause.

3.2. *Psychological Scientists and Scientific Organizations*

- *Expertise.* Scientists were extensively trained and have up-to-date knowledge on the best methods for designing, conducting, and interpreting research studies.
- *Trainees.* Scientists working in universities typically have students who are funded and may be motivated to work on advocacy-related projects for theses, dissertations, or other projects. Although there are historical concerns about power issues and the potential for student exploitation that must be kept in mind, students can often benefit from opportunities to conduct research relevant to advocacy.
- *Influence.* Scientists can influence students, the public, and others in a way that comes with a level of prestige or is otherwise often not available to advocates.
- *Financial Resources.* Scientists typically have or can apply for funding to do research via external grants (including potentially from animal advocacy organizations, but also others) or internal university funding.
- *Public Credibility.* Because science involves implementing techniques designed to limit bias and subjectivity, the public generally trusts information from science to be free from bias.
- *Access to Information.* Scientists working at universities can typically access publications that are behind publisher paywalls through university membership, and are trained in searching the scientific literature to identify publications relevant to a given theme.

4. Challenges

There are many ways in which science and advocacy combine. As described above, there are several examples of organizations that engage in both science and advocacy. There are also many people who do science and advocacy in ways that are distinct: there are advocates who also do science, scientists who also do advocacy, and scientists whose research goal is directly tied to advocacy. This overlap creates both opportunities and challenges, and the goal of the remainder of this document is to detail these challenges and opportunities in a way that provides scientists, advocates, and people who do both a model for working together effectively

or determining the circumstances under which it is not profitable to collaborate. Throughout this section, we will describe individuals and organizations that do “advocacy” and “science” to illustrate certain points as if these are distinct, although there are obviously many people and organizations with expertise in both.

4.1. Perceptions of Bias

It would be natural for lay people or critics to perceive bias in collaborations between advocates and scientists. For example, research that indicates that a certain species is sentient or that there are certain health benefits to plant-based diet may be treated more skeptically if it is funded by an animal advocacy organization than otherwise. It is also possible that advocacy-science collaborations could be perceived as biased within the animal rights community. For example, abolitionist advocates may perceive bias in research that suggests meat reduction interventions are more beneficial than abolitionist interventions if it is funded by an organization that has promoted a reducetarian approach. These perceptions risk creating skepticism about science in this area more generally. This is a challenge because science is one of the best tools available for understanding the most effective ways to advocate for animals, and mistrust in science can have negative consequences for both advocates and scientists. For example, public mistrust could negatively impact funding of scientific research and limit scientific progress, hinder the implementation of effective policy interventions, or make it less likely that the public will make scientifically informed decisions.

There are both legitimate and illegitimate (but nevertheless important to be aware of) reasons for perceptions of bias. People really can be biased. Scientists are human and they have blind spots that are motivated by their values and beliefs and even material incentives, and this clouds objectivity. Scientific methods offer a safeguard against personal biases but they are far from perfect. Thus, perceptions of bias are often accurate and should be attended to closely by responsible scientists.

However, some perceptions of bias are motivated by the perceiver’s dislike for certain results. Most research is funded by bodies with a special interest. This includes the fact that a lot of research in animal welfare science—investigating animals’ emotional states to improve their housing and care in captivity—has historically been funded by industry groups that support animal exploitation. In principle, research that is funded by an animal advocacy organization is no more likely to be biased than research that is funded by any other organization with a vested interest. Likewise, most scientists do advocacy or charity or express their concerns about their personal values, and it is common for scientists to have biases associated with their own work. However, there are special challenges associated with doing scientific work on issues that are of personal importance or in an area that is controversial. Perceptions of bias can often be traced back to the fact that animal advocacy seeks to understand and promote a lifestyle that many people would generally agree is ethical, but which is nevertheless uncommon in society, and that discrepancy makes people uncomfortable. There may be other reasons for inaccurate perceptions of bias as well, such as more general anti-science attitudes.

Moreover, there are ways in which the researcher's bias can be useful for scientific progress. Having explicit knowledge of a topic, such as the social perception of being vegan, for example, can aid understanding of vegan/non-vegan conflict. Rather than bias the results towards the researcher's perspective, however, skilled analysts use their knowledge to add insight, being transparent about their bias and, as a result, present results which acknowledge their subjective position. This can seem counterintuitive in science; however, it can have the welcome effect of making scientists' biases explicit within the published work.

4.2. Goal Tension

While advocates and scientists working on animal rights issues may ultimately share the goal of improving the lives of non-human animals, they can have different proximal goals. In general, advocates hope to exert pressure directly to achieve the goal, using whatever means are most strategic. Many organizations are interested in learning about best practices from research, but with research evidence in hand, must weigh other considerations such as existing staff and donor preferences, values, and priorities.

Scientists aim to discover objective facts about nature using methods that limit, albeit never fully eliminate, bias or, alternatively exploit their subjective bias to enhance understanding. While many scientists hope that their work will have applied implications, such as benefiting animals, in the end, the way in which the knowledge produced by science is applied is a secondary goal to generating that knowledge.

While it can be powerful to pair advocacy and science, there are instances in which these goals can create tension between missions. For instance, it is possible that scientific evidence contradicts trusted practices or beliefs in advocacy. Scientists are currently actively comparing methods of advocacy, and this research suggests that some methods that are commonly promoted by some advocacy organizations may be less effective in certain ways than others. It is also imaginable that evidence for some of the arguments used to advocate for animals, such as health benefits of plant-based diets, are more ambiguous than suggested by advocacy materials. It is even imaginable that using arguments with ambiguous scientific support is nevertheless an effective advocacy method, in which case a reasonable argument could be made for advocates using them.

It is also possible that there are advocacy practices and beliefs that cannot be resolved by science. For instance, there is tension in the advocacy community between utilitarian and abolitionist approaches, and at least part of that tension has to do with different values about what counts as effective. Although science can help test certain hypotheses in these debates about the outcomes of advocacy based on different values and assumptions, it is less helpful for determining which values are best. In some cases qualitative research can explore the conflicting perspectives, attitudes, and beliefs in such a way that adds insight about the motivations of each perspective.

The resources that support advocacy and scientific organizations differ in ways that could also lead to goal tension. Most advocacy organizations have budgets derived from philanthropic contributions, and it is possible that donors have certain interests that guide the missions of those organizations. Most scientists work for public institutions or private educational institutions, which can also influence what scientists prioritize. There may be instances in which advocacy and scientific goals conflict because of variation in the missions, desires, or mandates in these funding sources.

Goals can also conflict within advocacy organizations. For instance, significant attention has been given recently to the tension between goals to protect and support non-human animals and goals to protect and support underrepresented human groups. This has to do with systemic injustice that affected animal welfare advocacy, as it has in all other areas of society, and has created some [difficult decisions around leadership and allocation of resources](#) within the animal advocacy movement.

4.3. Value Tension

Whereas advocates want to have impact as soon as possible, scientists tend to focus on how they might be wrong because they are interested in ruling out all possible alternative explanations for their findings. Advocates are driven by their passion for the cause they are advocating, and they typically want to see change as quickly as possible. Additionally, advocacy organizations often need to be responsive to timelines established by budgetary constraints and to respond to funders with concrete deliverables within a certain amount of time. While advocates would like to be fast, science is slow. The generation of knowledge via scientific research takes a long time: Methods for studies must be carefully thought through, studies can take a long time to conduct, and rarely does any single study significantly advance knowledge. Moreover, on occasion, the results of a single study are simply wrong. Just as it is possible to flip a fair coin and get heads 8/10 times, it is also possible to “find” something in a scientific study that is not actually true. Thus, it is the accumulation of research across many different scientists and approaches that typically reveals the truth about nature. Advocates would often like scientists to communicate how one study could change or improve advocacy, but from a scientific perspective, this is often not possible due to the studies’ limitations. For this reason, scientists are often reluctant to draw any conclusions from a single study, and this can be frustrating for advocates.

A related value difference is between generating and using knowledge. The fundamental goal of science is to generate basic knowledge, independent of the value of that knowledge for improving the world. In contrast, the goal of advocacy is to apply knowledge to solve a problem. There is a lot of gray between the basic and applied poles, but nevertheless the different emphases on basic and applied work can sometimes be challenging. For instance, it is often the case that some of the most important advances have come from science that discovered facts about nature without knowing how those facts could be used. On the other hand, it can seem difficult, from an advocacy perspective, to spend time and resources on research questions that do not have a clear implication for improving the lives of non-human animals.

4.4. Communications

Extensive training and experience is required to do high quality advocacy or science. This training and experience is embedded in norms, customs, and language that can create communication challenges between advocates and scientists. Ultimately, the goal of advocacy-science collaboration should be to conduct ethical, high-quality, meaningful, and practical research. This requires several steps that can be impeded by miscommunication.

For example, one challenge for the scientist involves putting relevant advocacy questions into scientific language so that the appropriate methods can be used to test focal hypotheses. Depending on their background and the scope of their work, scientists may find it difficult to assess how they might apply the methods they have expertise in to the kinds of questions that would be most helpful to advocacy. Conversely, depending on their background and training and the complexity of the questions that interest them the most, advocates may have a difficult time framing the questions that would be most helpful to answer into a language that can be used to design a tractable study.

As discussed above, there is an urge to answer big and pressing questions from advocacy quickly, but science generally proceeds by working slowly on small and incremental questions. Bridging the gap between the pressing need to answer big questions that can improve advocacy and the need to tackle small questions in a systematic matter to produce robust science contributes to the potential for communication gaps between advocates and scientists. For instance, scientists may not be able to see the forest for the trees in a way that leads to the kind of study that would be most helpful, whereas advocates may find it difficult to appreciate that the scientific method is too slow to provide quick answers to some of the most important questions. At the same time, conducting research that is overly conservative misses important opportunities to meaningfully advance advocacy, whereas moving too quickly on tenuous scientific findings can waste resources.

Finally, it can be difficult for both scientists and advocates to describe the results of their studies. Researchers who are effective at explaining their methods in technical detail often struggle to explain them to a more general audience. Likewise, advocacy experts without specialized expertise may find it difficult to discern what it is about a certain study that is most important for their work. Advocates may also find it difficult to translate the results of scientific studies to their target audience in a way that is most effective. Indeed, it is often the case that it is important to disseminate findings from the same study to different audiences in different publications, such as when results from the same study are disseminated in peer-reviewed journals, internal organizational documents, and public advocacy materials. It is typically important to present different kinds of findings, or the same findings presented in different ways, in these different outlets. It would be unusual for the same person to be effective at framing results for all three.

5. Principles and Best Practices

In this section we provide principles and best practices for addressing the general and specific challenges described in the preceding section.

5.1. *Limit the Negative Impacts of Bias*

As discussed above, there are at least two sources of perceived bias about the science of animal advocacy. First, scientists - as human beings - often really do have biases. Second, bias can be perceived that does not actually exist, either because the perceiver is motivated to see it or does not have a good understanding of research funding norms. In both cases, the solutions are the same: doing science requires a significant level of personal responsibility, conducting studies with integrity and humility, using all of the checks against bias available to scientists, or harnessing subjective bias in a principled way to enhance understanding. In any case, it is important to maintain a clear distinction between when a person or organization is engaging in rigorous science vs. persuasive advocacy. Using these methods will help the researcher limit the impact of their own biases and provide an effective response to false accusations of bias. Here are some specific tools and techniques that can be used to ensure that science is done as rigorously as possible. Some of these methods are general to all approaches, whereas others are specific to quantitative or qualitative approaches.

General Methods

- *Be interested in being wrong.* This is the essence of the scientific attitude. An interest in how and why we are wrong is what helps us eliminate personal biases to the extent possible.
- *Collect data from appropriate samples.* Research findings can depend heavily on the sample used, and likewise generalizability of findings depends on the match between the sample and the population to whom the researcher would like to generalize. For instance, we have less confidence that findings from North American undergraduates generalize to the North American population than we would from a study with a representative sample. Likewise, there are strong reasons to believe that findings from North America and Europe, where the majority of animal advocacy science is currently produced, do not generalize well to other parts of the world. However, it is often very difficult and costly to obtain representative samples, and much can be learned from convenience samples. There are also sometimes situations in which generalization is less important than generating deep insights about a small, specific population. Thus it is important to both sample appropriately and to be clear about the population to which findings generalize when interpreting results.
- *Publish findings from within-organization studies in peer-reviewed journals.* It is often appropriate to disseminate research findings in a variety of places, but there are important advantages to publishing in scientific journals. The principal advantage is the opportunity to expose the research to reviewers and editors who will critique the

methods and offer alternative suggestions for how to approach the research. This provides an important check against researcher blind spots or biases and can help the research be more rigorous.

- *Collaborate with people from outside advocacy organizations.* Blind spots and biases can occur within people, but they can also occur within institutions. It is generally healthy for organizations, particularly those with a singular mission, to include people from outside the organization who can consult in a way that brings a novel perspective.
- *Agree about what findings will be publicly reported from the outset.* Situations are likely to arise in which an advocacy organization would not support public dissemination of certain results that they perceive as undermining their mission. This can conflict with the general principle that scientists should report the results of their research objectively. To prevent this problem, it is best for advocates and scientists to work together to formally agree at the outset of the study what findings would be published and what would not, and under what conditions. These issues generally need to be handled on a case-by-case basis, and in such a way that the scientist feels that the research is responsible and credible and the advocacy organization feels that the results are helpful to advance their cause.

Qualitative Approaches

- *Collect data directly.* An advantage of qualitative approaches is that data are collected directly from the source. Although structured materials such as interview prompts, focus groups, etc., are often used, participants interact directly while providing data, typically using channels that are familiar and easily interpreted, such as answering questions or having a discussion. Direct data collection limits the potential impact of researcher bias on the data obtained.
- *Be transparent.* Qualitative researchers often have personal relationships with their data sources (e.g., people they interview). In order to facilitate trust and high-quality data, it is important to be transparent about research goals and personal values relevant to the research to both participants during data collection and to the scientific community and public during dissemination. This facilitates honest exchange and provides context for the nature of the data that are gathered. For potentially contentious topics like animal harm reduction, making the participants aware of the researcher's position can lead to open and frank transactions even where both parties have conflicting perspectives. However, when participants are unfamiliar with the researcher, revealing the researcher's personal stance may not be beneficial, as it could lead to tensions or amplify the potential for demand effects. The researcher is therefore tasked with assessing whether disclosing their positionality is necessary or indeed relevant to the research being conducted.
- *Report raw data.* Qualitative researchers often organize their data into themes, but in general qualitative research involves less abstraction from raw to summarized data than quantitative research. This is an advantage in terms of limiting bias, and to take full advantage, it can be useful to fully report raw data in such a way that consumers can understand exactly what participants said or did, with the researcher adding layers of

understanding and meaning to the data from a fully transparent position. This allows the consumer to draw their own conclusions about bias in the data by being able to accurately place the researcher within the data collection and analysis process. However, it may not always be possible to release all raw data due to concerns over participant identification and confidentiality.

- *Include participants as stakeholders in research.* Participants are often involved more directly in qualitative than quantitative research, in the sense that they typically interact directly with the researcher. Qualitative research also typically has smaller samples of participants for whom the research question is directly relevant. As such, participants are typically stakeholders in the research, who both deserve to be fully informed and potentially benefit from the study, but who also can provide valuable information about how to conduct the study and use the information that comes from it. Including participants in the research connects the research participants directly to the consumers, and thus can limit the influence of researcher bias.

Quantitative Approaches

- *Use well-validated measures.* Well-validated measures help ensure that results mean what we think they mean, increase the power and precision of our studies, and help researchers and consumers compare results across studies. It is not always possible to use well-validated measures, but when it is, this is usually preferable to making new measures for individual studies. In this area of research, it is typically a good idea to generate measures with the input of advocacy organizations, who have good ideas about what should be measured, and with input from stakeholders that can be generated using qualitative methods.
- *Use appropriate analytic procedures.* There are a variety of ways in which inappropriate procedures are used to analyze data. Consequences of inappropriate data analysis can include results that do not speak directly to the hypotheses, imprecise or underpowered results, or statistical bias. For instance, there are many examples in the literature in which a more powerful procedure could have been used to provide a more precise and powerful test of a certain hypothesis within a dataset (e.g., using latent rather than raw variables to enhance power and reliability). There are also many examples in which an analytic procedure is used to test a hypothesis that is not actually plausible given the data it is applied to (e.g., testing hypotheses about within-person mediation processes in cross-sectional data). Ultimately, using appropriate methods for approaching data is critical for building a robust and reliable body of knowledge.
- *Preregister hypotheses and analysis plans.* Preregistration is when study hypotheses, methods, and designs are posted publicly prior to data collection and/or analysis. This can take the form of registered reports, in which publications are accepted prior to a study, or preregistered studies that are fully written prior to publication. Preregistration requires the researcher to think through their design, prevents questionable research practices, and enhances public confidence in the results. Full preregistrations do not necessarily need to be made fully public, depending on the goals of the study.

- *Distinguish between confirmatory and exploratory research.* Confirmatory research is the result of studies in which hypotheses were preregistered. Exploratory research is the result of studies in which hypotheses were not preregistered. Although readers should have more confidence in confirmatory research findings, it is often appropriate to use data to test exploratory hypotheses. The important issue is that these approaches to research are clearly distinguished.
- *Replicate results.* There are many reasons that a certain study may produce an incorrect result. In general, we can be more confident in findings that are observed multiple times, particularly when they are observed by different people using different designs in different populations.
- *Post study materials in a public repository.* Posting materials allows other scientists and consumers to review research methods, potentially identifying weaknesses in the research design. It also helps allay potential concerns about questionable research practices, and can be valuable source material for other researchers who wish to conduct similar studies.
- *Post data in a public repository.* Posting data allows other scientists and the public to review research results, view research materials such as survey instruments, confirm the accuracy of published results, and potentially identify patterns in the data that challenge the primary findings. It also helps address potential concerns about questionable research practices and can be valuable source material for other researchers who wish to conduct similar studies.
- *Report basic information about study findings.* It is often the case that consumers are interested in results that go beyond the statistical test result for a certain hypothesis. In addition to posting data for consumers or other researchers, it is therefore also important to fully report materials and findings. This includes posting all descriptives and bivariate associations or univariate group differences in addition to the results of more complicated models, describing the reliability of all study measures, and including effect sizes and confidence intervals for all statistical tests. It is often useful to report both standardized and unstandardized effect sizes, and to put information about effect sizes in a narrative form that makes them easy to interpret (e.g., “this effect is similar in magnitude to the correlation between height and weight in humans”, or “this finding suggests that 1 thousand dollars could be saved in the US federal budget for every person who changed their behavior”).
- *Invite adversarial collaboration.* Adversarial collaboration occurs when people with different assumptions or hypotheses work together on the same project. This is a powerful way to check the biases of both parties because both sides have personal incentives to identify the biases in the other. This could include collaborations between people or groups with different (e.g., abolitionist vs. utilitarian) advocacy positions or with more pro-animal vs. anti-animal positions. The important issue is that both groups can agree from the start about how to test critical hypotheses and accept the results of the study.

5.2. Keep Advocacy Strategic

Science can be useful for advocacy, but there is much more to advocacy than science, and advocates should use all the levers they have to support their mission. In this sense, scientific research is just one of the many tools in the advocacy organization's toolbox.

- *Rely on strong evidence.* The stronger the empirical support for a given strategy, the more likely that strategy will be worth investing in. However, several issues need to be considered when it comes to interpreting evidence.
 - *Gather data from multiple studies rather than relying on one study.* The results of a meta-analysis that has synthesized data across many studies are more trustworthy than the results of a single study.
 - *Be aware of publication biases and questionable research practices.* Even combining data from multiple studies in meta-analyses doesn't guarantee reliable conclusions. It is now well-established that many effects reported in the literature are likely not real in the population, also known as false positives. This results from institutional structures at the levels of publishing, promotion, and funding that incentivise researchers to misapply statistical techniques to "find" positive effects ('p-hacking') and suppress negative or null findings ('the file drawer problem') as scientific journals are less likely to publish such results. One way to minimize these biases is for researchers to preregister their studies: they outline what they plan to do and how, including how to analyze their data, before collecting any data. Another way to minimize their biases is to publish all results, even (or especially) when they are not consistent with their hypotheses. Thus, confidence should be reserved to aggregated effects from studies that have observed reproducible practices, such as preregistration, publicly available data, replication across settings, methods, and researchers, and full reporting of effects from all preregistered hypotheses.
 - *Consider effect sizes.* When interpreting scientific results, people usually look to see whether that finding is likely to have occurred by chance—i.e., statistical significance. In addition to the question of whether a certain finding is statistically significant or not, one must carefully consider the size of the effect—i.e, the strength of a relationship between two variables, or the difference between two groups. Very large effects are uncommon in psychological research, to the degree that we should generally be suspicious when they are found. However, small effects can be important if they are aggregated across many people. For instance, a messaging campaign that is only persuasive to 1/100 people could change the behavior of 1,000 if it were delivered to 100,000 people. At the same time, it is important to consider the costs and benefits of implementing strategies based on scientific effects which, again, are likely to be small.
- *Amplify messages strategically.* Advocacy groups can amplify certain messages or findings from scientific studies in a way that controls and frames the narrative for advocates, the general public, and the media. They should do this strategically, and with

the awareness that the most positive findings from an advocacy perspective may not be the most prominent findings reported in paper abstracts.

- *Leverage diversity.* Advocacy organizations exist throughout the world, and thus exist within very different economic and political cultures. They also have different missions, goals, and foci. It follows that the strategies that make sense for one organization or group will not make sense for others.

5.3. Promote Synergy

The premise of this document is that there is considerable potential synergy in using advocacy and science to inform and enhance one another. This could occur in a variety of ways.

- *Individuals can do both.* It may be helpful for individuals to gain expertise in both advocacy and science. This might help individuals learn how to communicate across these communities, appreciate the challenges in and values of both, and allow them to move more flexibly between roles.
- *Organizations can do both.* Many organizations do both science and advocacy one way or another. Several successful models have been developed for doing science within animal advocacy organizations that can be built upon or used more broadly. Scientific organizations typically have outreach missions that could potentially include animal advocacy, and it may be possible for individuals working within those institutions to apply pressure in this direction.
- *Work together.* There are several successful examples of collaboration between advocacy organizations and scientists who are not affiliated with those organizations. This can be an efficient way to pair the expertise and resources from both disciplines to maximize success. This could come in many forms, including designing and conducting studies from the ground up, advocates consulting with researchers to help derive important questions, advocacy-sponsored internships or training opportunities within academic settings, researchers consulting with advocates to evaluate and improve their studies, etc.
- *Make clear determinations about when working together is not possible up front.* There may be situations in which the values of advocacy and science conflict to the degree that it is not possible to collaborate. There also may be situations in which collaboration is only possible with significant compromises on one or both sides. These kinds of situations are better dealt with in a transparent manner and at the beginning stages of a collaboration.

5.4. Keep the Difference Clear

Just as important as promoting synergy is maintaining a clear distinction between advocacy and science. Both are important and their combination has value, but it is critical to be clear about the underlying goals and methods being used in both advocacy and science.

- *Distinguish individual roles.* Many individuals do both advocacy and science, and it is important for them to use the norms and principles that apply to each when they transition between roles. Just as when adults transition between being parents, professionals, partners, and friends, different patterns of behavior are effective and appropriate in advocacy and science roles, and role confusion can have negative consequences.
- *Distinguish roles within teams.* Often collaborations are most effective when people with different kinds of expertise work together. In such teams, it is important to establish a structure in which roles are clear. For instance, advocates will generally have better ideas about what questions are important and how to best disseminate results of studies for effective action, whereas scientists will generally have better ideas about how to set up studies and analyze data. Having a transparent, clear, and agreed upon structure so that power is allocated to take advantage of these different kinds of expertise can help teams work more effectively together.
- *Distinguish publications.* Above we listed three kinds of publications: peer-reviewed journal articles, internal documents, and public advocacy materials (note that there are many varieties beyond these three, and formats other than written documents). It is important when preparing these different kinds of publications that the goals and standards are clear. In general, the authors' personal views and efforts to persuade the reader in a manner that extends beyond the data are inappropriate for peer-reviewed journal articles. Information that has to do with internal organizational strategy is often inappropriate for any public communication. In addition, there are times that a strict adherence to robust scientific evidence is an unhelpful constraint on public advocacy materials. Thus, these different kinds of documents should be generated with a clear vision of their use, and typically should be labeled appropriately so that consumers have a clear understanding of what they are consuming.
- *Use external review and consultation.* It may be helpful to have external reviewers or ombudspersons consult or review work to ensure that boundaries between advocacy and science are effectively maintained.
- *Clarify objectives up front.* The objectives of advocacy groups should be transparent to collaborating scientists, and the objectives of scientists should be clear to advocacy organizations, at the outset of a collaboration. Scientists should be familiar with the history, mission, and activities of organizations they are considering collaborating with, and advocacy organizations should be familiar with the work and reputation of scientists prior to agreeing to work together. In addition, collaborators should explicitly discuss the objectives that each hopes to achieve by working together up front.
- *Be aware of and declare Conflicts of Interest (COIs).* In addition to subtle biases, there are a variety of explicit conflicts of interest that are important to acknowledge. For instance, research that is funded by an organization has a conflict of interest against publishing research that would contradict the interests of that organization (a common example is research funded by pharmaceutical companies that may show that certain medications are ineffective or have harmful side effects). It is best for the integrity of both science and advocacy to be open about any potential conflicts of interest, and declare them publicly on all relevant publications.

- *Declare funding.* One common conflict of interest has to do with how researchers obtained the resources needed to conduct their work. As described above, a risk associated with publishing research funded by animal advocacy organizations is the perception that the work was biased in favor of promoting animal rights. However, this also applies to research that is funded by any other organization with a vested interest, which is the majority of research. This should be declared, although it does not imply that the study's findings are invalid or necessarily biased. Just as in science more generally, it is important for the integrity of science to explicitly declare funding sources in published materials, and particularly in scientific (e.g., peer-reviewed) publications.

5.5. Communicate Effectively

Ultimately, effective communication between advocates and scientists, and between both and the public or certain communities within the public, is essential for working together and achieving shared goals. Indeed, the primary motivation for the current project has to do with promoting effective communication. As described above, this can be challenging, but several specific principles and techniques can promote effective communication.

- *Do not assume shared knowledge.* The reason that it is often wise for people with different expertise to collaborate is because they have complementary knowledge, training, and skills. However, it is easy to make assumptions about what might be important or obvious to someone with a different background. In general, it is better to be explicit about one's assumptions, approaches, skills, and contributions, and to have an open conversation about these issues at the beginning of a collaboration.
- *Define terms.* Words and languages can sometimes develop that do not carry the same meaning across disciplines or social networks. It is often important to explicitly define the terms we use to ensure mutual understanding. An example of this is "effective altruism", which might have a generic and generally positive connotation to lay people but has a very specific philosophy and can evoke different reactions among advocates.
- *Listen closely and check in.* It can be challenging for scientists to fully understand the priorities of an advocacy organization or, more generally, what kind of knowledge would be most useful for advocacy "on the ground". Likewise, it can be challenging for advocates to fully understand the importance of certain techniques, or how to interpret the results of certain kinds of studies. Moreover, meaning, goals, and strategies can shift over time, and this may create misunderstanding during the course of a collaboration despite having established clear and mutual understanding at the outset. For these reasons, it is important for collaborators to pay close attention to the information that colleagues provide, be sure it is understood from their perspective, and to have regular updates to ensure that collaborators stay on the same page.
- *Use communication experts.* Scientists and advocates both often use experts to describe the results of studies or frame their message. Likewise, it helps to have experts on a collaborative team that can translate between people with different backgrounds.
- *Build skills.* Scientists should learn to communicate science in a lay-friendly manner via webinars and professional development training, while advocates without scientific

training can learn more about the scientific process (e.g., <https://faunalytics.org/research-advice/>)

- *Be efficient.* It can be very difficult to translate the goals, methods, and results across science and advocacy. Information can be lost and it can take a long time to explain what is needed or how findings are interpreted or used. Several strategies can be implemented to deal with this, including engendering a strong working relationship, being clear about these issues from the outset, and employing specific communication strategies or experts to ensure that communication is as efficient as possible.

5.6. Collaborate with Neighboring Disciplines

Many other areas of science and humanities do important work in this space and have established effective ways to work together with advocacy groups. Likewise, many advocates conduct research that goes beyond psychology and have established associations with experts in neighboring disciplines. This field can also learn from and contribute to advocacy and science being done on adjacent topics and from business. There is a significant advantage in drawing upon multidisciplinary expertise. Below we provide a few examples.

- *Sociology.* Sociologists provide a broader context for the cultural and historical trends in society that contextualize individual choices, and there is a strong history of studying social justice within this intellectual tradition. Many of the ideas regarding societal structures that support injustice are critical for situating both psychological science and advocacy.
- *Philosophy.* Philosophy can help ground psychological science in firm definitions, ground both research and advocacy within a coherent ethical framework, and provide clear ideas about the underlying reasons for current and aspirational behavior.
- *Humanities.* The humanities, such as literature and history, provide a richness to the connection between science and advocacy. For instance, history provides examples from the past of the conditions under which advocacy and science have been more or less successful and rich examples that can serve as powerful models in advocacy. Literature can bring history to life and provide compelling narratives that enable more impactful advocacy.
- *Animal Welfare Science.* Animal welfare scientists have examined issues central to the collaboration between psychology and advocacy, such as investigations of sentience. This work reinforces moral arguments about the rights of animals that undergird some advocacy and may pave the way for research that incorporates more directly the voices of non-human animals themselves.
- *Political Science and Law.* Much of the work that is done in advocacy-science collaboration has its greatest impact in the enactment of increasingly progressive law. Understanding the dynamics of political influence, the domain of political science, is key for heightening this impact. Likewise, those advocating for progressive laws can benefit from the work being done in both science and direct advocacy.
- *Communication Studies.* Communication scholars are steeped in a long history of both the study and practice of influence/persuasion. The field also foregrounds the

importance of audience and context as key variables for consideration, provides space for a wealth of research methodologies and has expressed an interest in social movements since the 1960s. Given the importance of messaging in change efforts, communication studies is a worthwhile discipline from which to seek collaborators.

- *Nutrition.* Given the close connection between animal welfare and human diet, many studies relevant to animal welfare have been published in journals focusing on nutrition and diet. Likewise, it is important for animal welfare advocates to consider nutrition-related issues.
- *Advocacy in Other Domains.* Many adjacent forms of advocacy (e.g., for welfare in oppressed human groups, environmental causes, etc.) face similar challenges as those in the animal welfare space, and advocates for a range of causes have collaborated with scientists to achieve their goals. There is significant untapped knowledge and potential in closer collaboration with advocates and scientists focused on other domains of justice.
- *Business.* Business is a powerful mechanism of social change in the current social system, and many of the norms in business enhance efficiency and impact. While this can have downsides, adopting practices that are common in business - even businesses that work actively against animal welfare - has the potential to sharpen the practice of advocacy, science, and advocacy-science collaboration. Likewise, collaborating with for-profit businesses represents a pathway through which animal welfare and psychological science can achieve practical success.

6. Examples of Specific Challenges

6.1. Full vs. Strategic Reporting of Results

As a general rule, scientists are expected to fully share their methods, data, and results, whereas advocacy organizations are motivated to disseminate those results that are most strategic given their goals. These kinds of situations can be challenging, for instance if certain results conflict with an advocacy mission. Note that this is not just a problem for advocacy; there are also [good reasons to limit sharing in science more generally](#). As discussed above, this is one more reason why there should be a clear agreement about how results will be shared prior to collaboration. However, sometimes this issue can arise even when it was not foreseen. There may be other ways to deal with this issue. In many cases, even seemingly negative results can be important and informative for long-term advocacy, even if in the short-term they may seem counter-strategic. It may be possible to establish a middle-ground solution, such as sharing information with a limited community (e.g., granting access to other scientists upon request). Third, researchers might be explicit that they are not fully sharing their results and given advocacy-related reasons for doing so. Below are some examples in which this kind of problem could arise.

Case: An animal advocacy organization decides to collaborate with a scientist to evaluate the effectiveness of their intervention. The scientist conducts a study and finds that the advocacy

organization's intervention has no impact on animal product consumption, and is therefore ineffective. In this case, it is in the interests of the scientist to report these results honestly. It is also in 'true' (long-term) the interests of the advocacy organization to report the results honestly, so that they can adapt their intervention or pivot to another strategy to achieve their goals. However, it may not be in the apparent (short-term) interest of the advocacy organization to report the ineffectiveness of their intervention, especially if their immediate funding would be threatened as a result. The scientist must also be mindful, in this case, that advocacy organizations could be put off working with scientists to evaluate their programs in the future if there is a possibility of negative outcomes leading to a loss of funding. It is in the ultimate interests of both parties to report such results honestly, though it may need to be handled sensitively.

Case: A scientist/advocate conducts exploratory research, and stumbles onto the finding that a 100% increase in consumption of factory farmed meat has a causal link to a 1% increase in income. Knowing that many people would accept a 100% increase in farmed animal suffering in exchange for a 1% increase in income, the scientist/advocate may choose not to publish this finding, because it would likely cause a significant increase in farmed animal suffering.

Case: An animal advocacy organization decides to collaborate with a scientist to evaluate the effectiveness of their intervention. The scientist conducts a study and finds that the advocacy organization's intervention has a significant impact, resulting in 15% following a plant-based diet compared to 10% in a control group. It is in the interests of both the scientist and the advocacy organization to take care in the reporting of this result, since it is true that both (A) the intervention was associated with a 50% increase in vegetarianism, and (B) the intervention was associated with a 5-percentage point increase in vegetarianism. To a lay-reader (and potentially to donors and other funders) these two statements appear very different, with (A) seeming far more impressive than (B). The scientist and the advocacy organization should take care when reporting the results to funders, and to the media.

6.2. Sensitivity to Issues of Power, Privilege, and the roles of Underrepresented Human Groups

Researchers want to investigate the impact of animal advocacy on people's behaviors and attitudes, including whether the impact varies by demographic traits like race/ethnicity, gender, income, etc. It's important for the investigators to consider whether the results could have particular implications for any historically disadvantaged group (e.g., marginalized races, ethnicities, gender identities, sexual orientations, disabilities). To prevent and minimize any negative implications to marginalized communities, the investigators should involve stakeholders from these communities in their research design from the beginning, with the goal of minimizing bias in survey questions (e.g., language used, phrasing) and maximizing usefulness of the project to these communities. Further, the investigators should determine which subgroup analyses to conduct and ensure sample size calculations take those analyses into account (e.g., to look at results for Black and Hispanic or Latino/a/x participants in the U.S. groups who are often underrepresented in research).

Case: A Western advocacy group wants to conduct research and/or interventions to reduce animal consumption in China, but some advocates are concerned that overseas interventions could be morally imperialist and/or ineffective. If we are indifferent between the suffering of animals domestically and the suffering of animals overseas, but there are better opportunities to help more animals overseas, we should ultimately not shy away from these opportunities. It is worth noting that such an exercise would not constitute an imposition of Western values, since the majority of Westerners also eat factory farmed animals. That said, researchers should work with local advocates as much as possible, (a) to avoid the perception of moral imperialism, and (b) to increase cultural knowledge, thus increasing the impact of interventions.

6.3. Perceptions of Bias

People sometimes perceive bias in science in general, in certain kinds of science, or based on funding sources. The value of strong science is reducing and/or managing bias but not possible or always desirable to fully eliminate.

Case: An animal advocacy organization investigates how many farmed animals are on factory farms and finds that globally over 90% of farmed animals are on factory farms. Critics of the research claim that it is biased because it has come from an animal advocacy organization. However, (a) it is fallacious to say that a finding is necessarily untrue because its source has an interest in the area, and (b) if a neutral organization were to conduct the same research, and reach the same conclusion, the critics could then label that organization as an animal advocacy organization. In this case, it is worth making efforts to combat bias explicitly and clearly in reporting.

6.4. Strategic Communication with Advocates

What to do when advocates on the ground do not accept science, e.g., advocates might hear the public say "I'd be more likely to listen if you weren't so pushy with graphic images." We know from research that these images are persuasive, but advocates could easily get the impression that this is not the case if they took the public at their word. Scientists should take care to explain findings to advocates and explain the processes which might cause them to believe otherwise.

Case: An advocate repeatedly hears from the public that they would be more likely to change if the advocate was less pushy with graphic images, though the science shows that such images are persuasive. They approach the scientist asking whether they should change their strategy. The scientist explains to the advocates that evidence suggests that individuals in the public may say this to avoid these images, which might upset them and encourage them to change their diet when they don't want to. That said, the scientist should also be aware of the limits of their knowledge and be open to the possibility that the experience of advocates might provide insight which counters or moderates their claims. Indeed, part of the scientist's responsibility would be to explain that we do not yet know whether more aggressive forms of advocacy are more effective because they exert underlying changes in attitudes and behavior despite initial

negative responses, whether there is value in tailoring messaging depending on target receptivity, or whether some other strategy might be most appropriate given the challenges facing the advocate. Thus, the scientist should be able to clearly communicate both what is known about an advocacy-relevant topic, as well as what is not yet known.

6.5. Producing Different Deliverables from the Same Research

Because advocates and scientists can have different values and goals, they may also have different ideas about what deliverables should come out of a research collaboration.

Case: An alternative protein company contracts a scientist to investigate public perceptions of their product. They want to (a) promote some findings to the public and their investors, and (b) keep some findings private to inform their internal marketing strategy. Ideally, the scientist should agree in advance which findings will be made public, and which will be kept private. There is not necessarily any ethical concern with keeping some findings proprietary, but this should not be done to the detriment of honesty in reporting of the public results.

6.6. Responding Responsibly to a Single Provocative Finding

We discussed above that knowledge in science accumulates across many studies, conducted by different research teams using various methods. However, there is a pressure to move quickly in advocacy, and this can create challenges. This tension has been discussed in the literature: <https://www.nature.com/articles/s41562-020-00990-w>.

Case: An advocacy organization collaborates with a university researcher to study the most strategic way to promote meat reduction in their community. The study findings show that the most significant factors involved communicating positive messages about the ethics of animal agriculture directly to community members. The advocacy organization launches a major program the following year based on these findings. However, the program is largely ineffective. A follow-up research study shows that the major findings did not replicate, and in fact for some groups the strategy had a negative effect. As it turned out, the advocacy organization used valuable resources on an ineffective strategy because they based their approach on research findings that were promising but not yet solid.

7. Recent Examples of Effective Advocacy-Science Collaborations

- *Research prioritization process.* Faunalytics prioritizes research topics annually through a multi-phase process that includes reviewing research project ideas proposed by advocates and other organizations. This process allows Faunalytics to prioritize topics that would help a large number of activists and a large number of animals, which is why Faunalytics doesn't just focus on research that could help farmed animals. Instead, Faunalytics selects studies that could help activists in various cause areas or types of work, also known as capacity- building research. Overall, Faunalytics aims to identify

high-impact studies to help activists and organizations make decisions, which in turn contributes to reducing suffering and saving animal lives.

- *Legislation study.* With the feedback from six different advocacy groups, Faunalytics picked ten U.S. states to poll the level of public support and opposition to different pieces of animal welfare legislation. Doing so enabled the research team to ensure that the data would be useful to advocacy groups that are considering introducing specific state-wide legislation. Without this stakeholder feedback, it's possible that the research team would have polled states or topics that wouldn't be useful to groups that focus on legal advocacy.
- *NSF grant.* A small team of academics currently led by Dr. Megan Jones (Oregon State University) is collaborating with Courtney Dillard (MFA) on research funded by the National Science Foundation to investigate the effectiveness of peer-to-peer influence regarding plant-based diets. This joint effort has demonstrated the myriad ways such partnerships can enhance and extend research efforts. In terms of the academic collaborators, they have been able to access target audiences for surveying, existing MFA corporate relationships to offer attractive participant incentives, resources typically not available in an academic environment such as tech, design and editing services and organizational decision makers who can make good use of their findings. For the advocacy organization, they have been able to apply the expertise of highly-skilled quantitative researchers to questions of strategic interest, increase credibility with various stakeholders through affiliation with the NSF and reach a broader set of audiences, particularly with the peer-reviewed publications, than they typically would.
- *Precision fermentation research.* This collaborative effort involved not only an advocate and an academic, but also a staff member of a plant-based alternatives company. Oscar Zollman-Thomas (Formo), Courtney Dillard (MFA) and Garrett Broad (Rowan University) worked together to conduct 10 focus groups in four countries regarding name and frame preferences for precision fermentation (poised to replace conventional dairy practices). From this research they were able to create a wide variety of documents which could be shared with different stakeholders. These deliverables included a deep dive, informative report which was made available to other companies in the industry, a peer-reviewed paper which was published in *Frontiers: Nutrition*, a short report on animal welfare frames shared with animal advocates and a well-attended webinar which included stakeholders from across the advocacy, academic and industry sectors. In addition, the three participants leveraged their organizations' media relationships to gain much greater visibility for the research than would typically be possible for any one entity.
- *Multicultural study.* Mercy For Animals partnered with academic collaborators to develop and deploy a multinational survey instrument. The multidisciplinary team included NGO researchers, university faculty, and a graduate student. Development of the survey was completed via literature review and group discussion, incorporating validated scales from relevant literature and questions aligned with the NGO's mission. The survey was housed on a university-sponsored instance of Qualtrics with funding for survey deployment provided by Mercy For Animals. Samples of 1000 participants each were obtained from 23 countries using the data collection agency Cint. Results from this survey can help improve understanding of self-reported attitudes and behavioral

intentions of people in different countries towards farmed animal welfare, plant-based alternatives, and other relevant topics, as well as the likelihood of participation in key advocacy activities like signing petitions, volunteering, and donating. The survey not only provides insight on individual countries, but also offers a consistent point of comparison across countries. Deliverables from this project include(d) internal NGO reports, peer-reviewed publications, conference talks (with a record-building opportunity for the graduate student), and extended collaboration through selective data sharing.