



# CENTER FOR ENVIRONMENTAL AND ANIMAL PROTECTION

2019-2020

ANNUAL REPORT

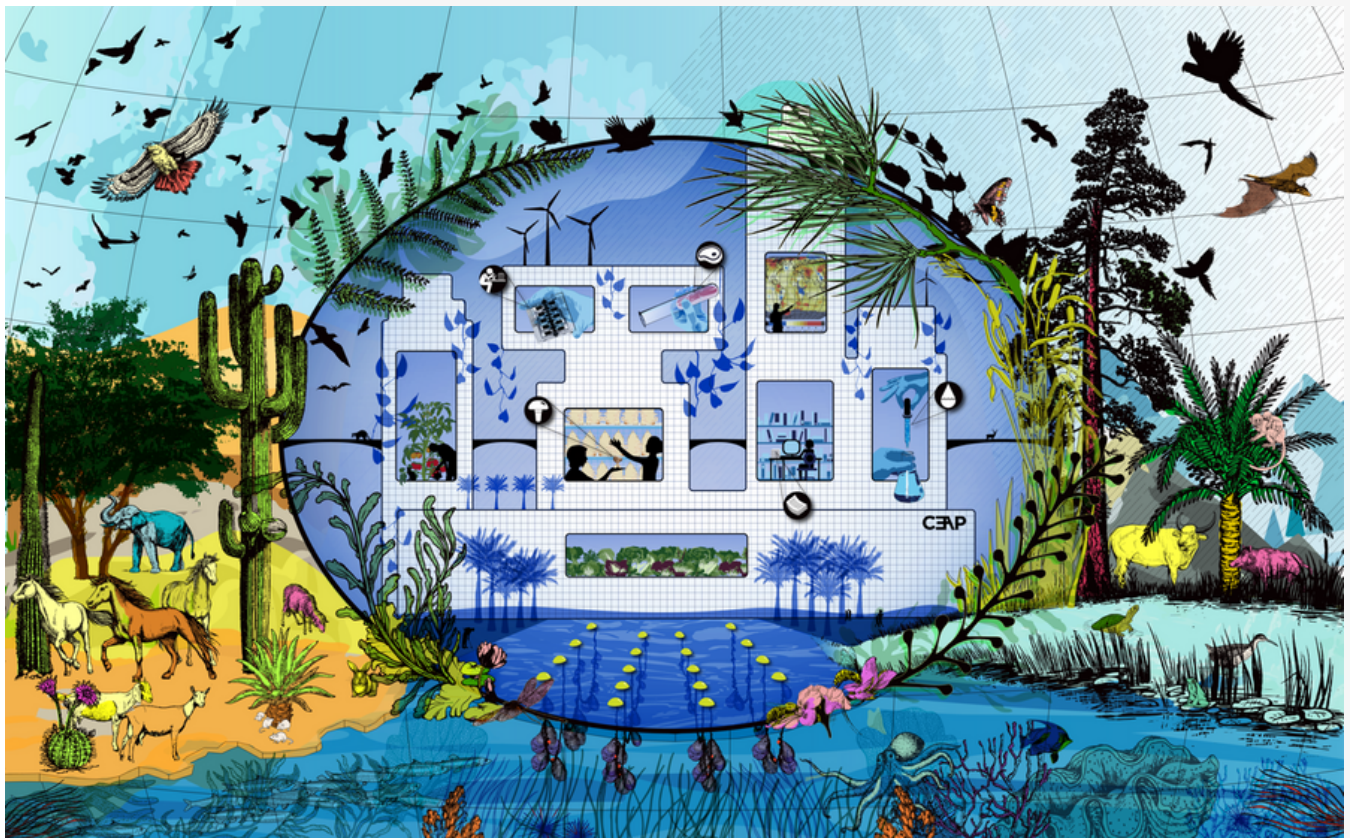


Image credit: Marina Zurkow and Sarah Rothberg



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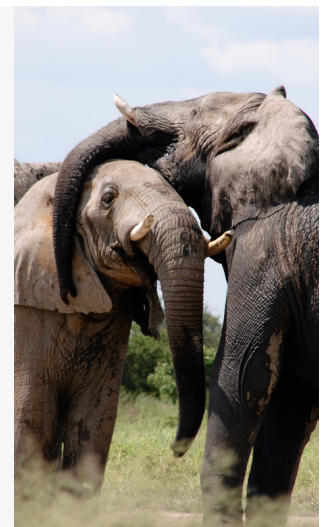
# INTRODUCTION

NYU's Center for Environmental and Animal Protection (CEAP) is an endowed research center that conducts, supports, and disseminates research that contributes to environmental and animal protection. The Center has three distinguishing features: (1) its focus on highly credible, evidence-based research that provides usable knowledge and policy recommendations to decision-makers and advocacy groups; (2) its emphasis on the integration of environmental and animal protection issues; and (3) its attention to fostering collaboration between scholars and private-sector change makers. In addition to supporting academic research, CEAP publishes occasional research briefs intended for a wide audience that you can sign up for by emailing: [ceap@nyu.edu](mailto:ceap@nyu.edu).

Since CEAP's launch in September, 2018, its mission has only become more urgent. The Covid-19 global pandemic is an object lesson in the human health risks that come from exploitative relationships with animals whether in live animal markets, feed lots, or through habitat destruction. The climate change induced fires that are sweeping through regions of both hemispheres, with their harrowing images of human and animal suffering, are a powerful reminder of how entwined our fates are on our common homeland Earth.

In its second year CEAP's research projects are increasingly synergistic. Much of our current research portfolio involves animal agriculture and its relation to environmental and animal protection. One research stream explores global pathways towards a world without meat. A second research stream has a regional focus on bending the curve on meat and dairy consumption in China. In addition, CEAP has supported projects on the environmental and welfare effects of CAFO-free chicken production, centering animals in agriculture, the welfare and conservation implications of alligator wrestling, and on strategies for combatting zoonotic disease transmission.

CEAP is an independent entity, housed in NYU's Department of Environmental Studies, that maintains close collaborative relationships across the University including with NYU Animal Studies, the Environmental Humanities Initiative, and the professional schools in law, business and medicine. Since becoming a degree-granting program in 2007, Environmental Studies has graduated more than 550 majors. The Animal Studies minor, created in 2010, has graduated approximately 100 students. The MA program in Animal Studies, which welcomed its inaugural class in 2018-19, has awarded 10 degrees and has 25 enrolled students contributing to a diverse community of energy, enthusiasm, and talent.





# BIG BEEF AND DAIRY INFLUENCE ON CLIMATE METRICS AND POLICY

A forthcoming study funded by CEAP and published in *Climatic Change* is the first peer-reviewed study to assess the climate responsibilities of the world's largest 35 meat and dairy companies. Almost none of these companies have made an explicit commitment to achieving net-zero emissions by 2050. In addition, there are large discrepancies in how these companies report emissions and plan to plan to mitigate greenhouse gas emissions, if they do so at all. The analyses also includes projections of these companies' future emissions based on existing practices, and compares them to the climate commitments of the countries in which these companies are head-quartered. The team also examined the political influence of the 10 largest meat and dairy companies in the U.S. and found that each of these companies has funded research minimizing the link between animal agriculture and climate change. While animal agriculture's role in climate change has been well-documented—it is estimated to cause nearly 15 percent of human-generated greenhouse gas emissions—previous analyses have mainly focused on the sector as a whole, rather than on the largest corporate actors.

The study is authored by Oliver Lazarus, a graduate of NYU's MA program in Animal Studies, Sonali McDermid and Jennifer Jacquet, Associate Professors in NYU's Department of Environmental Studies.



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# ONGOING RESEARCH

## Toward a Meatless Future

Humans now manage, slaughter, and consume billions of terrestrial and trillions of aquatic animals each year to fulfill growing meat demands. As a result, animal agriculture is now among the largest drivers of global environmental change, contributing to about 15% of greenhouse gas emissions, as well as nitrogen pollution, biodiversity and wild animal loss, and land, energy, and water consumption. Reducing the human consumption of animals is one of the most effective things we can do to both reduce environmental and climate impacts and improve animal welfare. Moreover, animal agriculture primarily serves the industrialized world and wealthier population segments; among the poor, global food insecurity is still pervasive and persistent. An emerging body of research shows that diets higher in pulses, legumes, and coarse grains are nutritionally dense, can facilitate a transition away from animal-based protein and contribute to food security, while also providing environmental benefits.



We have launched a series of research projects to identify regional and global challenges to ramping up the production and consumption of plant-based protein crops and alternatives in order to meet the triple goal of reducing our reliance on animal agriculture, mitigating animal agriculture's climate and environment impacts, and fostering improved human health and food security.

### Projects:

- Alternative Protein Pathways
- Closing Investment Gaps for a Global Food Transformation

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## Alternative Protein Pathways

This project identifies country-specific trajectories and pathways for alternative protein production and consumption in a world without animal meat. Specifically it a) assesses the country-specific impacts of alternative proteins by evaluating trade-offs and synergies across environmental, economic, animal welfare, and social dimensions, and b) engages a range of stakeholders and experts at the intersection of environment and animal protection to consider how these findings can inform policy (and other) options to facilitate food system transitions. As an initial proof-of-concept, it is focusing on constructing alternative protein pathways in China, thereby dovetailing with other CEAP work. This will enable the construction of a protein pathways framework that can be applied to many other countries and contexts.



Sonali McDermid (co-PI; Department of Environmental Studies, NYU);

Matthew Hayek (co-PI; Department of Environmental Studies, NYU);

David Kanter (co-PI; Department of Environmental Studies, NYU);

Sumedha Rai (Research Assistant; MS student, Center for Data Science, NYU)

## Closing Investment Gaps for a Global Food Transformation

This project investigates the public investment gap between major commodity crops and “orphan” crops whose productivity needs to improve in order to serve the interests of human health, environmental protection, and animal welfare. One requirement for constructing an alternative protein pathway is the increased production of protein-rich crops (e.g., pulses, legumes, nuts, coarse grains, etc.). A hurdle to the widespread adoption and scaling of these alternative protein crops is their relatively low productivity compared to major commodity crops (several of which, such as soy, are currently used mainly for animal feed). This project is quantifying how U.S. public research and development funds are partitioned between orphan crops and current staples, and recommending: (1) a re-orientation of public agricultural investment towards these “orphan” crops; (2) an increase in collaboration between public health, nutrition, agriculture, and environment sectors; and (3) an increase in data collected at the level of individual crops.

Sonali McDermid (PI; Department of Environmental Studies, NYU);

Alex Bollington (Department of Environmental Studies Alum, NYU);

Marcia DeLonge (Union of Concerned Scientists);

Matthew Hayek (Department of Environmental Studies, NYU);

Dhara Mungra (Research Assistant; MS student, Center for Data Science, NYU)

## Bending the Curve: Meat and Dairy Production and Consumption in China

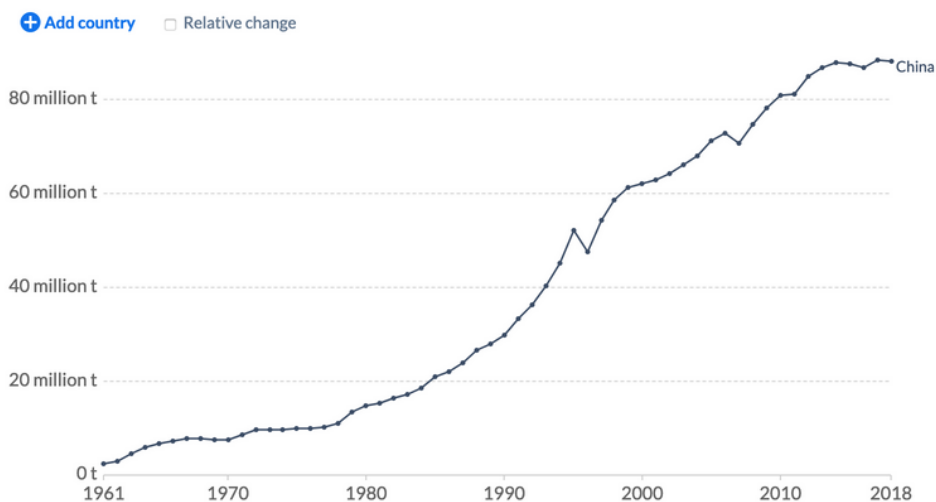
The history of the People's Republic of China (PRC) is marked by an extraordinary turnaround from an isolated and economically impoverished nation to one that is integrated into the global economy and increasingly troubled by problems such as obesity and pollution. In 2016, in alignment with President Xi's plans to foster an "ecological civilization" ("生态文明"), the PRC's National Health and Family Planning Commission issued new dietary guidelines that call for limiting lean meat consumption by about 50% to 40-75 grams per day. If these guidelines are fully implemented, GHG emissions from meat consumption would be reduced by 70% or 1 billion tons from their 2030 projections, cutting the PRC's total emissions by 6%. While these would be important gains, there is the risk that other sources of animal protein would substitute for these reductions, compromising environmental protection and animal welfare. We have launched a series of research projects that seek to understand present and future trends in animal protein consumption in the PRC and support policies conducive to environmental and animal protection.

### Projects:

- Behind the Flattening Curve: The Apparent Plateauing of Chinese Dairy Output and Its Underlying Dynamics
- Toward Precision-Mapping of Veg-Restaurants in Chinese Cities

#### Meat production, 1961 to 2018

Meat includes cattle, poultry, sheep/mutton, goat, pigmeat, and wild game.



Source: UN Food and Agricultural Organization (FAO)  
Note: Figures are given in terms of dressed carcass weight, excluding offal and slaughter fats.

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## Behind the Flattening Curve: The Apparent Plateauing of Chinese Dairy Output and Its Underlying Dynamics

The project aims to provide a deep reading of China's meat and dairy sectors in recent decades. After a brief period of rapid growth in the early 2000s, China's national dairy output has remained almost constant since 2005, even as the growing economic might of the Middle Kingdom continues to manifest in its expanding production of other foodstuffs, such as seafood, pork, and poultry. In this project, we set out to investigate the apparent plateauing of China's dairy output since 2005, and arrive at a number of conclusions that have broad implications for understanding the complexity of food production and consumption in contemporary China.



Yifei Li (PI; Department of Environmental Studies, NYU Shanghai);  
Dale Jamieson (co-PI; Department of Environmental Studies, NYU);  
Michelle Huang (Research Assistant, NYU-Shanghai Alum)

## Toward Precision-Mapping of Veg-Restaurants in Chinese Cities

This project aims to develop a sophisticated machine-learning tool for identifying, inventorying, and mapping vegan, vegetarian, and veg-friendly restaurants in Chinese cities. The project entails both a research component and a public-service dimension. The research is oriented toward better understanding the spatial unevenness of veg-restaurants in China, and documenting the rapid evolution of the veg-culinary scene in urban China. Such an orientation is important because it provides a concrete angle to understand the alternative-protein transition from the consumer's point of view. The public-service aspect of the research will materialize in the form of an add-on function in an existing food ratings app in China. This project has been supported by the Dean's Undergraduate Research Fund at NYU, and it has been designated an NYU Vertically Integrated Project. Going forward, it will involve undergraduate students from both NYU New York and NYU Shanghai, Jiayi Ji, Yijie Wang, Hriditaa Rajeev Dekate, and Mohini Anand, as well as master's student Juntao Jiang.

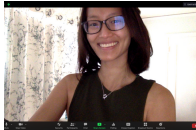
Christopher Policastro (Mentor, Data Science, NYU);  
Yifei Li (Mentor, NYU Shanghai);  
Shizhu Liu (Mentor, Courant Institute, NYU)

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## Other Projects

### **The Environmental and Welfare Effects of CAFO-Free Chicken Production**

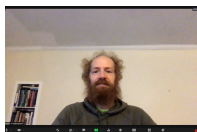
In 2018, the United States chicken industry slaughtered over nine billion chickens. As consumption of chicken continues to rise, so have welfare concerns regarding conventional concentrated feeding animal operations (CAFOs) and fast-growing breeds prone to bone damage. There is large-scale interest among producers and retailers to source slower-growing, higher-welfare chicken breeds raised on better management systems as soon as 2024. However, introducing slower-growing chicken breeds to the US CAFO agricultural system could increase the annual number of chickens raised and slaughtered, creating unintended negative welfare outcomes. Additionally, the land required to take chickens out of CAFO systems may be impractical, or lead to destruction of wildlife habitat for crops and pasture. This is the first study to characterize the population changes and potential land-use consequences of a nationwide transformation for slower-growing and/or free-range chickens.



Iris Chan (PI; Animal Studies MA,  
Department of Environmental Studies, NYU)

### **Centering Animals in Agriculture**

The purpose of this project is to assess, document, distill, and translate the empirical and ethical importance of animal agriculture from a primarily environmental perspective. This project focuses on environmental assessments of agriculture, including the basic argument for emphasizing animals in environmental assessments of agriculture, how assessments differ, and why methane and nitrous oxide matter in such assessments. It also explores psychologically resonant frameworks for understanding environmental, animal, and human impacts and ethics, including analyses of purity, localism, and non-industrial frameworks. This project is part of a larger research project, which will result in a monograph, which will align updated empirical evidence and ethics with a narrative about animal and environmental harms, and also offer positive stories about protecting animals and the environment. The main contribution of this project is to strengthen the case that animal agriculture deserves close attention from those concerned about environmental change.



Chris Schlottmann (PI; Clinical Associate Professor,  
Department of Environmental Studies, NYU)



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## Investigating the welfare and conservation implications of alligator wrestling for American Alligators (*Alligator mississippiensis*)

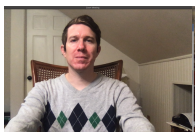
Wildlife tourist attractions (WTAs) are popular in the United States but may be harmful to the individual animals involved with questionable environmental conservation payoffs. Most research on WTAs focuses on mammals, with little attention paid to reptiles. NYU Animal Studies graduate Casey Riordan along with Environmental Studies professors Becca Franks and Jennifer Jacquet set out to examine alligator wrestling in Florida with the goal of assessing its impact on animal welfare and environmental conservation. By examining a sample of 94 YouTube videos of alligator wrestling from 15 different venues, they coded for environmental and behavioral characteristics and conducted a content analysis of wrestlers' commentary during performances to evaluate their conservation education claims. The results suggest that alligator wrestling is causing systemic welfare harm to alligators: for example, 96% of videos showed wrestlers physically restraining alligators, and 96% did not show a suitable waterside feature in the performance arena. Furthermore, 16% of videos showed wrestlers tying alligators' jaws shut while 12% showed wrestlers flipping alligators onto their backs, both of which are acute stressors for alligators. Less than half of alligator wrestlers discussed conservation topics during their performances, and those that did often provided contradictory, confusing, or misleading information that may undermine conservation goals. The results suggest that alligator wrestling does little to promote positive relationships between humans, animals, and the environment, and instead furthers harmful notions of dominion.



Casey Riordan (PI; Faunalytics, Animal Studies MA, Department of Environmental Studies, NYU)

## Formulating and Assessing Strategies for Combatting Zoonotic Disease Transmission

In 2008-10, Colin Jerolmack interviewed doctors, veterinarians, and epidemiologists who worked at US government agencies, in order to understand the obstacles to tracking and responding to zoonotic diseases. One of the project's major findings, which were published in the journal *Sociology of Health and Illness*, is that in most countries around the world, human and animal diseases are treated as separate entities. This creates a silo effect whereby agencies that monitor animal health rarely share disease surveillance data or coordinate responses with agencies that monitor human health. More troubling, this problem is exacerbated by a division of labor within the domain of animal health: Distinct and sometimes competing agencies regulate and surveil animal populations based on whether they are categorized as pets, livestock, or wildlife. This new project pushes in four directions: 1) communicating and advancing policy frameworks that connect the dots between human, animal, and environmental wellbeing (e.g., "One Health" and "Planetary Health"); 2) assessing the relative contribution of various anthropogenic changes to zoonotic disease outbreaks (e.g., deforestation, factory farming, wet markets and bush meat, warming temperatures, global travel and trade); 3) assessing how animals have been impacted by the rise of emerging infectious diseases; and 4) researching and publicizing case studies of successes in heading off zoonotic disease transmission by working at the human-animal-environment interface.



Colin Jerolmack (PI; Associate Professor, Department of Environmental Studies, NYU)

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# RESEARCH BRIEFS

## RESEARCH BRIEF #1

### Improving pulse production for a sustainable food future

The demand for plant-based protein is growing and pulses (e.g., beans, chickpeas, lentils, and peas) are an increasingly preferred protein source. Yet we have little idea how pulse production could be scaled up to provide healthy and sustainable diets for everyone. Assistant Professor Matthew Hayek made the first attempt to quantify this challenge.

## RESEARCH BRIEF #2

### Centering animals in climate change adaptation

Clinical Associate Professor Jeff Sebo conducted this research for a forthcoming book on animals, pandemics, and climate change. In this brief he reminds us of the importance of taking animal welfare into account in climate change adaptation, and suggests some ways in which this can be done.

## RESEARCH BRIEF #3

### Integrating human and animal health can prevent pandemics

In 2013, Associate Professor of Sociology and Environmental Studies, Colin Jerolmack, published a prescient paper pointing out that our disease surveillance systems are siloed: human health is divided from animal health, and wildlife is separated from livestock health. Professor Jerolmack updated his original paper, and tells us that we must “tear down the wall” between human and animal health and embrace the “One Health” paradigm, including reducing or reversing habitat and biodiversity loss and reducing the consumption of animal products, if we are to avoid the next pandemic.



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# LOOKING AHEAD

As with you, the lives of CEAP researchers have been dominated by the facts of the COVID pandemic and the need to stay safe. The face-to-face interactions on which creative research thrives are not likely to return until later in 2021. Yet, our work continues. In 2021 we look forward to welcoming early a post-doctoral fellow based at NYU--Shanghai, who will add breadth to our work on 'Bending the Curve.' We are also working with colleagues at the Harvard Law and Policy Program on a project that maps global regulatory responses to live animal markets. We hope to launch projects next year focusing on identifying the most effective mechanisms that local governments can use to reduce meat consumption, and on identifying and establishing new norms in conservation. Thank you all for your support. We welcome your feedback at [ceap@nyu.edu](mailto:ceap@nyu.edu)

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# ADMINISTRATION

## DIRECTOR



**Dale Jamieson**

Professor of Environmental Studies and Philosophy; Director, Center for Environmental and Animal Protection; Affiliated Professor of Law; Affiliated Professor of Medical Ethics, School of Medicine; Associated Faculty, Center for Bioethics, College of Global Public Health

## EXECUTIVE COMMITTEE



**Jennifer Jacquet, Deputy Director**

Associate Professor of Environmental Studies; Affiliated Faculty Stern School of Business; Affiliated Faculty Center for Data Science



**Colin Jerolmack**

Associate Professor of Sociology and Environmental Studies, Department Chair of Environmental Studies



**Sonali McDermid**

Associate Professor of Environmental Studies



**Jeff Sebo**

Clinical Associate Professor of Environmental Studies; Affiliated Professor of Bioethics, Medical Ethics, and Philosophy; Director of the Animal Studies M.A. Program