

Wild Animal Initiative

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Call for proposals Large Grants Program

Closing date: December 2, 2022

Grant size: Up to US \$200,000

Updated October 18, 2022

Wild Animal Initiative's 2022 Call for Large Grants is a restricted call focused on two very specific themes with related tracks that seek to address key unanswered questions important for understanding wild animal welfare. Wild Animal Initiative is inviting interested groups to prepare a proposal for a project of up to US \$200,000 to explore:

Theme 1: Density-Dependent Welfare:

- Track 1: Resource availability and density-dependent welfare
- Track 2: Density-dependent mortality
- Track 3: Population regulation interventions
- Track 4: Avoiding the carrying capacity paradox

Theme 2: System Dynamics & Network Effects:

- Track 1: Modeling community welfare
- Track 2: Empirically modeling network effects on wild animal welfare
- Track 3: Network effects of interventions designed to improve wild animal welfare

Projects can focus on either or both of the themes, and any one or more of the tracks. We would be especially excited to hear about projects that are able to address multiple themes or tracks at once.

Guidance

- Proposals should define clearly testable hypotheses and explain how any available data or information will be used to parameterize the study.
- Proposals should clearly outline the approach used to estimate or measure average welfare.
- Proposals should clearly justify the study approach chosen, including identifying the resources available for the study and expertise of team members.

How to apply

- If you are interested in preparing a project proposal to meet one of the themes described below, please submit a request for the proposal template by completing this [Expression of Interest \(EOI\) form](#) by **December 2, 2022**. The form includes a brief statement of the study you would plan to propose. We recommend carefully considering our general [selection criteria](#), [definitions](#), and [eligibility](#) guidelines.
- We will evaluate your suggested study and respond within 5 days of receiving your EOI, either rejecting the proposed project at this time, requesting further information, or inviting a full proposal. We will only invite proposals that will clearly address the research objectives identified below.
- If we invite you to submit a full proposal we will also reach out to discuss the details of the project with you. Full proposals will be due by **January 27, 2023**.
- We will seek to share final decisions by the end of March 2023.

We encourage applicants to [reach out](#) at any stage of the proposal development process to discuss their interest in proposing a project under the themes or carrying out one of the described studies.

Theme #1: Density-Dependent Welfare

Investigating links between population density, methods of population control, and wild animal welfare.

Changes in population density have the potential to affect wild animals' welfare by influencing their likelihood of experiencing hunger (resource limitation), disease (overcrowding), or confrontation with other animals. Population density can also influence interspecific competition, creating links between the carrying capacity and densities of multiple populations in the same or similar niches.

Particular population densities in a given community therefore influence the behavior of animals in that community, changing the challenges and opportunities they face. Higher population densities, in particular, may lead to decreases in welfare, particularly for individuals that have greater difficulty accessing resources (such as inexperienced or injured individuals). Yet, because population density in the wild is ultimately limited by resource availability, any attempt to reduce a population to improve welfare will likely result in the increase of another population to exploit the newly available resources.

Wild Animal Initiative recognizes that additional research is needed to understand the links between carrying capacity, resource availability, resource competition, predation, and population density of different populations. Elucidating these connections is key to determining whether interventions to humanely regulate populations and mitigate density-related causes of poor welfare are feasible. A thorough understanding of the influence of changes in population density on individual welfare could eventually enable us to estimate [the population size which would maximize the welfare](#) experienced by individual animals in that population.

For the **Density-Dependent Welfare Theme** of our Large Grants Program, we are seeking proposals that address one of the four tracks described below.

Track 1: Resource availability and density-dependent welfare.

Proposals in this track should describe a project that models or experimentally assesses the interactions between resource availability, population size/density, and welfare in a particular ecosystem. Projects should seek to estimate or measure the average welfare across all individuals in a given species. In particular, projects should estimate welfare for at least three population densities, matching these qualitative descriptions:

- A high-density case, in which the population is at or above its carrying capacity based on available resources.
- A low-density case, in which the population size is sufficient to meet individuals' social needs, but there is little or no resource scarcity.
- An intermediate-density case, in which the population size is between the above two.

Alternatively, studies could estimate density-dependent welfare over a series of repeated measures (featuring different population densities) over time within a population or across very similar populations.

Track 2: Density-dependent mortality.

Proposals meeting the criteria for this track will explore welfare indirectly: by estimating a density-dependent mortality rate. Examples of density-dependent features of mortality might include [evaluating causes of death](#) and

specifically compensatory mortality (see [Figure 2](#) in Wild Animal Initiative's three-part series on cause of death in wild animals). Studies should estimate density-dependent welfare at a series of time intervals and/or over a series of repeated measures across very similar populations.

Track 3: Population regulation interventions.

Proposals in this track should seek to better understand density-dependent welfare impacts of population control or population regulation methods. Preference will be given to studies that can provide empirically parameterized models or can evaluate modeled outputs against real-world datasets.

Track 4: Avoiding the carrying capacity paradox.

Proposals in this track should model, analyze, or empirically test whether options exist for avoiding the fact that attempts to reduce population density will generally be thwarted as new consumers emerge to exploit the newly available resources. Proposed projects should clearly explain why their proposed approach could be feasible in the wild and explain how the study will test the feasibility of the proposed approach. Projects that seek to consider a combination of resource competition, food web interactions, and interactions among populations and/or species would be of particular interest.

Examples

Suitable questions that could be explored under this theme within any relevant study system include, but are not limited to:

- How does the average welfare of animals vary with respect to the density of their population?
- What behavioral or physiological trade-offs do individuals make as resources become limiting, and how do these trade-offs affect their welfare?
- Does average survival or fecundity decline more as resources become limiting? And is this consistent among populations, species?
- Under what circumstances (if any) does increasing population density improve the net welfare of individuals?
- Beyond what threshold of population density (if any) does continued population growth reduce net welfare of individuals?
- How do causes of death and overall mortality rates vary with population density?
- Do density-independent causes of death (e.g., accidents, certain forms of disease and predation) reduce the number of deaths by density-dependent causes (e.g., starvation, infectious disease)?

Example references that could serve as a starting point for exploring density-dependent welfare:

- Bergman et al. 2015: [Density dependence in mule deer: a review of evidence](#)
- Cooley et al. 2009: [Does hunting regulate cougar populations? A test of the compensatory mortality hypothesis](#)
- Siler 1979: [A Competing-Risk Model for Animal Mortality](#)
- Cayuela et al. 2019: [Multiple density-dependent processes shape the dynamics of a spatially structured amphibian population](#)
- McMahon et al. 2017: [Seal mothers expend more on offspring under favorable conditions and less when resources are limited](#)
- Jentsch and White 2019: [A theory of pulse dynamics and disturbance in ecology](#)

Theme #2: System Dynamics & Network Effects

Investigating how system dynamics and network effects influence the welfare of wild animals.

Any proposed action to support the welfare of wild animals is likely to have impacts not only on the target population, but also on the ecosystem or community as a whole. The connectivity of wild systems presents a challenge for attempts to improve wild animal welfare. For example, it may be that providing supplemental food or treating a prevalent disease in one group of animals results in harms to another group of animals. A seemingly simple activity could have far-reaching consequences by, for example, modifying population distribution and abundance, shifting activity patterns, changing causes of death, or altering food and resource availability.

[Trophic](#), competitive, cooperative, and social interactions could all be affected by interventions to assist an individual or group of animals, resulting in unanticipated consequences for non-target groups. Advances in the ecological sciences and in modeling capacity have provided the opportunity to explore the impact of whole system dynamics and network effects in wild animal communities, but such projects rarely include estimates of animal welfare.

To better understand the potential for interventions that could help improve the lives of all wild animals in a community, regardless of species, Wild Animal Initiative is inviting proposals for research projects that would allow us to better understand the relationship between ecological network effects and welfare. We seek projects that explore ways to incorporate advances from animal welfare science into ecological modeling. We anticipate that projects combining modeling and welfare estimation will advance our ability to predict indirect effects of ecological dynamics on animal welfare, making future work to improve wild animal welfare more feasible.

For the **System Dynamics and Network Effects Theme** of our Large Grants Program, we are seeking proposals that address one of the three tracks described below. Recognizing the difficulty of the problem described above, these tracks focus on different elements of the overarching problem, including the development of technical tools. For each track described below, any prepared models should include explanations of the interactions posited, with empirical justification where available. Projects that estimate the age distribution of each modeled population and/or the prevalence of different causes of death in each modeled population would be of particular interest.

Track 1: Modeling community welfare.

Studies should seek to develop a theoretical or data-driven model for estimating community welfare. Community welfare estimates that include welfare scoring should include at least the following three measures:

- The total welfare, defined as the sum of the welfare scores of each individual.
- The average welfare, defined as the average welfare scores across each individual.
- The changes in these welfare metrics over time.

Projects that do not aim to score welfare should explain how their welfare assessment method could be compared between systems.

Projects should describe and justify the parameters used to estimate welfare and include an explanation of how the elements in the model influence the welfare of the individuals in the model. Projects should explore a combination of scenarios (parameter ranges) for welfare in the model. [Welfare should be defined as a subjective mental property of](#)

[individuals](#), but welfare may be indicated or measured by physiological, behavioral, or outcome-based proxies. We suggest, but do not require, that parameters for welfare be drawn from the Five Domains model of welfare ([Mellor et al. 2020, Figure 1](#)).

Track 2: Empirically modeling network effects on wild animal welfare.

Studies in this track should seek to model or test the network effects of community interactions on the welfare of members of the community. The proposed project should be applied in a well-studied system in which sufficient data and information is available to accurately parameterize and model the network effects. Projects can be based in any study system, including both traditionally wild and human-influenced landscapes. Studies should aim to determine the welfare consequences of natural processes, such as habitat destruction, resource competition, and predation. The model should attempt to estimate the welfare effects for at least three different species. Projects can focus on any group of taxa for which sufficient data is available.

Track 3: Understanding network effects of interventions designed to improve wild animal welfare.

Studies in this track should seek to model or test the network effects of specific interventions. Intervention-focused studies may connect to a specific past, present, or potential management activity, or examine theoretical impacts of a broad class of activities (such as disease control, population control, fertility control, resource provisioning, or rehabilitation).

Example

The following example is provided for illustrative purposes only, and would fit under Track 3 above.

What impact does providing a bird feeder have on the welfare of the birds who interact with it? And how do those effects go on to influence the welfare of non-target individuals? A promising project considering this issue would attempt to incorporate as many as possible of the following types of effects on the welfare of animals in the affected system.

- Food web interactions: prey (worms, other insects, etc), predators (other birds, small mammals).
- The intended recipients of the intervention (perhaps a particular bird species) and unintended recipients (perhaps non-target birds or squirrels).
- Whether the provided food itself will do any harm to non-targets animals.
- Whether the feeding system will increase the likelihood of disease spread.
- The influence of the intervention on competitors. For example, can the feeders directly (e.g., through increasing combat opportunities) or indirectly (e.g., by allowing one group, individuals, species to out compete others) result in negative welfare?
- The effects on non-target groups, such as small mammals (e.g., [Hanmer et al. 2016](#)).
- The effects that feeding of resident birds might have on returning migrants, such as by creating competition for nest boxes (e.g., [Plummer et al. 2019](#)).

Additional Information

Selection criteria

- **Impact:** How likely is it that this project will lead to an improvement in wild animal welfare?
- **Engagement:** To what extent will this project accelerate or inspire other wild animal welfare research?
- **Scope:** How many animals could potentially benefit from the results of this project, and by how much?
- **Tractability:** Does this project have a high probability of being able to be carried out as described and deliver the expected answers or results?
- **Neglectedness:** How likely is it that this project could be funded by another organization, without reducing its value for wild animal welfare?
- **Research ethics:** How likely is the execution of this project to cause harm to non-human animals or people?
- **Cost-effectiveness:** Given two projects of approximately equal overall merit (considering the above criteria), we will give preference to the one with the lower budget.

Definitions

- **Welfare:** The aggregate quality of an individual's subjective experiences over a given time period (or the sum of the welfare of each individual in a group). This can also be called "well-being" or "quality of life." We use "improving welfare" interchangeably with "reducing or preventing suffering." See [here](#) for further explanation.
- **Wild animal:** Any individual animal whose life is not closely managed by humans. This includes animals living freely in human-dominated environments, such as parks and urban spaces, but excludes pets, farmed animals, and animals kept in zoos or in laboratories.

Eligibility

This call is open to anyone, but we are especially interested in supporting postdocs and PhD students pursuing a long-term research career in the field of wild animal welfare, and researchers who have not previously included welfare considerations in their work. We particularly encourage applications from communities underrepresented in the sciences, including but not limited to people of color, self-identified women, and non-binary individuals.

We are unable to fund work that will be carried out in the United States by a non-US resident. We are also not able to fund researchers resident in nations subject to sanctions by the United States (e.g., Iran, North Korea, Russia). However, outside of these specific limitations, we welcome proposals for research by researchers from around the world. If you are not sure whether your project would be relevant to understanding wild animal welfare, or if you are not sure if you are eligible to apply, please feel free to [contact us](#) to discuss your idea and eligibility.

What we fund

We will generally fund whatever is required for the project to be completed. However, we prioritize funding for direct research costs such as for supplies, materials, and travel. Funding for other expense areas (such as stipends, salaries, or durable goods) should be fully justified relative to the project goals.

What we do not fund

Wild Animal Initiative does not provide funding for indirect costs or institutional overhead.