

# The Conguillío Statement on the values and responsibilities of ecologists and environmental scientists

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## Preamble

Amid global environmental crises threatening the survival of many species, including our own, a diverse group of scientists from 15 countries and members of 16 professional and academic societies, concerned with the current global environmental crises; met in February 2024 to address the urgent need to reflect on, and identify, core values and responsibilities as individual professionals and as

academic societies. After the meeting, other fellow professionals joined this conversation. Together, we focused our discussions on the multiple professions working with natural and human-modified ecosystems, to which here we refer to as *ecologists and environmental scientists* (EES).

The statement identifies several roles assumed by EES and proposes a core collective duty for EES: *taking care of Nature*. Here, Nature captures all ecosystems and people, this concept and the meaning of ‘care’ are further discussed in the statement. Using those concepts, this duty aims to capture the multiple facets of EES work with ecosystems and for sustainability. Our discussion started with direct conversations with people facing environmental crises in the vicinity of Conguillío National Park, in Chile, where our meeting was held, reviewing our values as EES, and exploring ways to use those values as guidelines for our daily practice. We systematised those guidelines as values and responsibilities for the roles that we identified EES have in society. We enriched the discussion with a scoping review of the mission and vision statements of 73 professional and academic EES societies from across the globe, codes of ethics and statements of values for researchers and professionals, and several statements that other professions use to guide their practice (reviewed in Ortiz *et al.* 2024). We acknowledge that different sets of values could ground similar responsibilities in different cultures and societies. In our case, the values helped us root these responsibilities in core principles, and provide consistency to the responsibilities across the different roles. To attain EES collective duty, we believe that EES—together—need to (1) carry out more of these roles and (2) be more responsible in each of them. Hence, agreeing and following shared responsibilities for the different roles that EES play is critical, because these responsibilities can align the actions of multiple professionals in their several roles, maximizing the impact of EES efforts.

We, the authors, are mostly from Oceania, Europe, and North and South America, living and working in different social-environmental conditions. We have been trained in universities, and for most of us, English became, at some point, the language of instruction. Our areas of expertise include biology, ecology, forestry, conservation, and other natural sciences, as well as social sciences and humanities. In our disciplines, some of us are researchers, practitioners, educators, policy- and decision-makers, communicators, advocates, and activists. And while we share a passion for a sustainable world, and envision a better one, our perspectives alone are not enough. We need and encourage other voices and perspectives in this pursuit.

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### **References**

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## Value statement

We, professional ecologists and environmental scientists (EES), are people trained in environmental and conservation sciences, forestry, geography, and other professionals working with ecosystems. Our mindset, knowledge, aptitudes, skills, and training help us in understanding, researching, and managing social-ecological systems. These systems are complex, interactive, and dynamic assemblages of organisms, including humans. These ecosystems and their peoples are diverse, changing and adapting in space and time.

Unfortunately, the dominant paradigms in industrialised and Western societies—which are the ones to which we belong to and which have the strongest global impact on the environment—tend to value disproportionately short- over long-term wellbeing and protect ecosystems only when they are of immediate instrumental value to people. These paradigms underpin human activities that often involve some people benefiting from damaging the ecosystems where others live and hampering humans' long-term survival. Among others, this is because many people, including EES, fail to grasp that the survival of humans depends entirely on the biodiversity, function, services, and contributions that are provided by all ecosystems (regardless of the degree of human influence in them, from natural pristine landscapes to urban areas) locally and globally. Further, the groups of people who acknowledge the intrinsic value of all ecosystems and recognize the importance of the relational values of connections between humans and ecosystems are not being listened to, or are actively ignored. Hence, there is insufficient will and action to ensure that all ecosystems and the services provided by them are preserved, particularly endangering those ecosystems that provide little instrumental value for humans. As a result, we are approaching ecological tipping points with severe consequences for all ecosystems, including people, across the globe. The harm done may require many generations to repair, if even possible.

In this context, we embrace *taking care of Nature* as our core collective duty. We see Nature as composed of all ecosystems regardless of the degree of human influence. And we see *caring* as a complex process that involves *recognizing* a need, *willing to respond* to that need, the *direct action* of giving care, *perceiving and responding* to how care is received, *organizing* the process of caring, *training* the next generation of EES, *discovering* how to care, and *convincing* others about the importance of caring. In this framework, we take care of Nature as researchers, practitioners, educators, policy- and decision-makers, communicators, advocates, and activists, with each EES taking one or more of these roles in their practice. Considering each of these roles that we assume as professional EES, we must establish our professional responsibilities to Nature and act on them. To help us guide and articulate these responsibilities, we need a clear understanding of our core values. Reflecting on the interconnections among our values, roles, and responsibilities in this time of global crises, we embrace and foster the following core values:

### Core values

- **Curiosity about ecosystems**, acknowledging their complexity, and the need to balance reductionist approaches with holistic thinking across space and time.
- **Empathy with all beings** as in a fundamental need to care, listen, and be aware of the particular context of each component of the socio-ecological systems that we occupy.
- **Intellectual humility** in recognizing that our individual and social beliefs and knowledge limit our understanding of our world and how ecosystems function.

- **Integrity and responsibility** in our values, communications, and actions, such that we act according to the recommendations and warnings that we make to society, considering and answering for their implications.
- **Competence and academic rigor** in our multiple roles, from executing research to defending, communicating, and sharing the best available evidence gained through our professional activities.
- **Inclusivity** by recognizing that novel and effective solutions for the global environmental crisis require integration of a diverse range of people, their knowledge and values of nature, embracing inter- and transdisciplinarity, and different academic backgrounds, ways of knowing, and cultural knowledge.

## Our roles and responsibilities

We, professional ecologists and environmental scientists (EES) collaborate with society through a variety of roles, each carrying different responsibilities in the common goal of caring for Nature. We are researchers, practitioners, educators, policy- and decision-makers, science communicators, advocates, activists, among others. The responsibilities in each role are derived from our shared values and provide concrete actions that, if each of us commits to them, will improve our chances of building a more sustainable future.

We note that some responsibilities are general and apply to every role, while others are more specific. Each professional should be aware of the multiple roles that they can play, using the following responsibilities as guidelines to foster better environmental and social conditions; understanding that society includes political, economic, health, cultural, and other aspects of people's lives, all of them important and interconnected. The following paragraphs describe the responsibilities derived from our core shared values in our most noteworthy roles.

### General Responsibilities

In our practice, we:

- **Ground our practice within a framework that** supports a socially just distribution of wealth, resources, opportunities, and access to a healthy environment for current and future generations, recognizing that true justice includes addressing disparities affecting marginalized and underserved communities.
- **Consider the intrinsic value of natural ecosystems**, acknowledging that these ecosystems and all living organisms require space and resources to thrive.
- **Recognize that ecological systems are complex, interconnected, and often unpredictable**, integrating such awareness into our practice, and clearly communicating the certainties and uncertainties associated with our knowledge and decisions.
- **Improve the interconnection between society and ecosystems**, by fostering a personal connection with the land and helping to conserve, restore, understand, or advance the sustainable use of ecosystems so that important ecosystem services are delivered for all people equitably.
- **Acknowledge that our context, backgrounds, identities, assumptions, and opinions influence our work and decisions.** In particular, we must acknowledge any potential conflict of interest that could affect our objectivity, be aware of the limits of our expertise, our biases, and their impact, and explicitly distinguish between opinion and scientific knowledge.
- **Examine any research and its conclusions critically**, being aware of the possibility of errors in the research and their potential implications, the dynamic nature of science and the evidence that we have, and recognizing that there is limited supporting evidence for some hypotheses used.

- **Participate, engage, and foster inter- and transdisciplinary collaborations** among fellow scientists, academics, professional societies, government, industries, research institutions, and societies at large, including local and Indigenous communities, aiming for fair treatment and meaningful involvement of all, considering affirmative actions when necessary.
- **Are always attentive** to situations that may require our participation, and always addressing the effectiveness of our actions.
- **Follow regulations**, customs, and cultural norms, while recognizing and addressing instances where these may be unjust or inconsistent with our ethical responsibilities in the contexts in which we act.

## Responsibilities as researchers

When we generate new knowledge or synthesize existing knowledge about the world, we should:

- Aim to increase our understanding of the ecosystems and, in the process, help to solve current environmental and social problems, conducting research in service of society and ecosystems, especially considering the well-being of future generations.
- Design and conduct our research in a way that will avoid or minimize—to the best of our abilities—any potential adverse impact on the environment and people.
- Conduct scientifically rigorous research aiming for the highest standards of research integrity, which includes:
  - well-designed, unbiased, and robust studies, carefully applied methodology, correctly analyzed and reported results, disclosure of underlying assumptions, and conclusions supported by the data.
  - transparency of data and methods to allow others to reproduce the results and analyses.
  - declaring and discussing any possible biases or weaknesses in the research, documenting uncertainties, and presenting alternative interpretations of the results.
  - clearly indicating speculation and avoiding unfounded claims.
  - clearly documenting any use of Artificial Intelligence in generating ideas, interpreting data, and writing codes, among others.
  - declare and address any biases we may introduce into our research given our context (e.g., conflicts of interest), personal or professional identities, and backgrounds.
- Consider the multiple ways in which our research could affect local communities, and collaborate with them when appropriate and as much as possible—from the design of the research questions, i.e. co-design—, and respecting their rights, laws, customs, and culture.
- Share and disseminate research data and findings to academic and civil society—particularly to practitioners and policy- and decision-makers—, including local communities in the process, even if the findings are contrary to expectations or not statistically significant. Data should be as accessible and reusable as possible, so that it can support global exchange of information, without causing harm.
- Treat students, local communities, and other scientists fairly. This includes treating them equally and with respect, recognizing their previous work and knowledge, giving credit or payment when appropriate, and impartially assessing their work.

## Responsibilities as practitioners

When working as site managers, field technicians, data analysts, and scientific advisors, among others, we often perform tasks within a wide variety of institutions guiding, supporting, and assessing the implementation of projects and policies. Therefore, we should:

- Integrate environmental sustainability principles in each project, considering the socio-ecological implications over different time frames.
- Explore strategies to update current practices when new ecological theories or evidence become available, or when ecosystem changes influence the effectiveness of current decisions. This implies integrating mechanisms to adjust practices as needed (e.g., adaptive management).
- Truthfully communicate assessments and recommendations to decision-makers, researchers, or the general public, providing recommendations to fill gaps in current projects, legislation, or any other management tool.
- Be transparent with methods, data, and interpretation of results, as well as with the potential consequences of recommendations and decisions.
- Explicitly acknowledge uncertainty, and the multiple strategies to reduce it, in our analyses, so that the certitude and reliability of expected outcomes can be clearly assessed.
- Make recommendations and design projects and methodologies based on the best available evidence, including scientific, traditional, and local knowledge. This implies working within our competence area, implementing rigorous practices, and working with other practitioners, researchers, and local people through inclusive, participatory processes when possible or applicable from design to implementation and evaluation.
- Treat fellow professionals and local communities fairly and respectfully, recognizing their work and knowledge, considering their ideas, and giving credit or payment when appropriate.
- Engage with local stakeholders and communities to ensure their perspectives and needs are considered.

## Responsibilities as educators

When we teach and prepare future generations and professionals, we:

- Treat students and fellow teachers fairly, respecting them, recognizing their previous knowledge and perspectives, and impartially assessing their work.
- Promote critical thinking and self-reflection about the practice of ecology, and intellectual humility.
- Promote problem-solving skills, inviting students to see environmental problems through different disciplinary lenses discussing ecology, social, economic, and historical contexts, as well as different cultural perspectives.
- Train the next generation to be societally and environmentally responsible, conscious, and well-informed.
- Explain how science works, as a non-monolithic form of knowledge that constantly evolves through careful experimentation, novel questions, and new technologies that allow for better ways to understand Nature.
- Teach meaningful, accurate, and current knowledge and skills.
- Bring awareness of the values and responsibilities of the different roles ecologists can assume, and train accordingly.
- Promote and teach skills relevant to collaboration, interdisciplinarity, and community building.



## Responsibilities as policy- and decision-makers

When participating in the process of supporting, developing, or making policy and management decisions, we:

- Consider that in many cases we are representing the interests of society and nature.
- Include sustainability principles into discussions of all policies and associated decisions. Specify both the environmental and social consequences of policy decisions, including how they interact over different time frames.
- Acknowledge and document the uncertainty that may impact decisions, so that risk attitude and the precautionary principle can be accounted for in decision-making. Utilize the available data and tools (e.g. empirical data, scenario analysis, modeling, and structured expert judgement) to predict and explore the impacts of uncertainty on decisions.
- When possible, explore strategies to integrate new or alternative ecological knowledge or how changes in the ecosystems can influence the effectiveness of current decisions, and adjust policies and decisions as needed (e.g., adaptive management).
- Consider and involve all relevant actors in the process of developing and implementing policy, including indigenous and other traditional users of natural resources. Identify shared values to resolve conflicts when necessary.
- Avoid and declare conflicts of interest that may influence our decisions.
- Invite experts to provide their advice, listen to the practitioners actively working on the project or topic, and make all decisions as transparent as possible.
- Actively and transparently communicate with the general public, practitioners involved in the decision processes, and researchers, about the data, the decisions, and their implications.
- Strengthen and share skills such as governance, leadership, and the ability to connect and navigate across various sectors and stakeholders..

## Responsibilities as science communicators

When sharing scientific information and creating dialogue with society, we:

- Communicate the best available science. Besides scientific results, we should aim to communicate the scientific process itself, acknowledging the limits of scientific methods and knowledge.
- Are mindful and respectful of our audience and their needs, existing knowledge, and attitudes.
- Explain and are honest about the seriousness of the situation, finding a balance to prevent a sense that there is nothing that can be done, and clearly communicate that there is no simple technological solution for the environmental problems that we face.
- Consider the social impacts of our message.
- Include multiple ways and strategies to exchange information with the community (like written, visual, oral, or diverse artistic expressions).
- Look for opportunities to involve communities in designing a communication strategy to ensure that our message reaches all relevant audiences.
- Build a multi-directional dialogue, looking to understand concerns, and develop mutual trust.
- When communicating facts, strive for objectivity and neutrality; when communicating opinions, make it clear that they are opinions and the rationale behind them.
- Contextualize "sustainability", explaining that our understanding of it and of the human actions that endanger it are evolving and improving with time.

## Responsibilities as advocates and activists

In the context of public issues associated with the environment, we engage in actions that speak, recommend, argue, or campaign to arouse the public for or against a cause, support, defend, or plead on behalf of others or the environment, to bring awareness of alternative values, ways of thinking, or issues faced by society, sometimes pushing the limits of what is considered acceptable by the society. In leadership and supporting positions in these roles, we:

- Base recommendations on the best available science when advocating for solutions.
- Recognize that successful advocacy and activism sometimes require skills (for example, in developing policy, organizing, mobilizing, or leadership), and actively develop these to build capacities.
- Identify mechanisms in which our support and actions can be impactful and we engage in them.
- Learn about the issue, the solutions, and their local impact, the consequences of advocacy and activism in a local context, and what has been done before to effectively address the issue, recognizing there are different schools of thought and theories of change in terms of what works.
- Inform ourselves about the perspectives of groups advocating for solutions or options that are different from ours in an effort to comprehend them, and identifying sources of potential conflicts and concordances.
- Respect the values and principles that guide other groups working with similar goals, and understand the role of our group in relation to others pushing for similar goals. We are one part of a larger movement.
- Establish a culture of regeneration by taking care of ourselves and all the people engaged in any action, taking steps to avoid burn-out and anxiety; creating safe spaces for voicing differing viewpoints and processes to effectively and equitably resolve conflicts; and being empathetic towards different cultures, abilities, and life histories.
- Lift, support, and give a platform within our internal and external communication to marginalized voices, especially when advocating for the same cause.
- Acknowledge the social and environmental impacts of the socio-economic system where we live and the lifestyle created by it and that these impacts can disproportionately affect communities in vulnerable situations (i.e., environmental racism). This means we should advocate for changes that can lead to reducing these impacts.
- Recognise that a societal transformation towards a more sustainable future is urgent, but also that long-lasting societal change takes time.