The Conguillío Statement on the values and responsibilities of ecologists

Carlos Alberto **Arnillas**[1†], Gisela C. **Stotz**[2], Javiera Beatriz **Chinga Chamorro**[3], Sharon **Collinge**[4], Mariana C. **Chiuffo**[5], Rebecca W. **Kariuki**[6], Hazel **Norman**[7], Andrea Monica D. **Ortiz**[8], Helen **Regan**[9], Kristiina**Visakorpi**[10], Kadambari **Devarajan**[11], Alexandra-Maria **Klein**[12], Florian **Schnabel**[13], Anni **Arponen**[14], Marc W. **Cadotte**[15], Roger **Cousens**[16], Ken **Ehrlich**[17], Marilyn **Grell-Brisk**[18], Lesley **Hughes**[19], Heather M. **Kharouba**[20], Tara G. **Martin**[21], Toni Lyn **Morelli**[22], Libby **Rumpff**[23], Bruno Eleres **Soares**[24], Ana Carolina **Prado-Valladares**[25], Michael**Williams**[26], Marten **Winter**[27], Florencia A. **Yannelli**[28], Menilek **Beyene**[1], Sula **Fernando**[1], Thomas **Hart**[29], Minna **Santaoja**[30], Nicolás **Santos Domínguez**[8]

[1] Department of Physical and Environmental Sciences, University of Toronto — Scarborough; Toronto, M1C 1A4, Canada
[2] Centro de Investigación para la Sustentabilidad, Facultad de Ciencias de la Vida, Universidad Andrés Bello; Santiago, Chile
[3] Escuela de Ingeniería en Medio Ambiente y Sustentabilidad, Universidad Mayor; Santiago, Chile
[4] Arizona Institute for Resilience; Tucson, 85721, United States of America
[5] INIBIOMA, Universidad Nacional del Comahue, CONICET; San Carlos de Bariloche, 8400, Argentina
[6] School of Sustainability, College of Global Futures, Arizona State University, USA; Tempe, 85281, United States of America
[7] British Ecological Society; London, N1 7GS, United Kingdom
[8] Departamento de Geografía, Facultad de Arquitectura, Urbanismo y Geografía, Universidad de Concepción; Concepción, Chile
[9] Department of Evolution, Ecology, and Organismal Biology; Riverside, 92521, United States of America
[10] Department of Biology, Norwegian University of Science and Technology; Trondheim, 7491, Norway
[11] Department of Natural Resources Science, University of Rhode Island; Kingston, 02882, United States of America
[12] Nature Conservation and Landscape Ecology, University of Freiburg; Freiburg, 79104, Germany
[13] Faculty of Environment and Natural Resources, University of Freiburg; Freiburg, 79104, Germany
[14] Administrative studies, Tampere University; Tampere, Finland
[15] Department of Biological Sciences, University of Toronto — Scarborough; Toronto, M1C 1A4, Canada
[16] School of BioSciences, The University of Melbourne; Victoria, 3010, Australia
[17] Roski School of Art and Design, University of Southern California; Los Angeles, 90089-0292, United States of America
[18] Pitzer College; Claremont, 91711, United States of America
[19] Macquarie University; Macquarie Park, 2109, Australia
[20] Department of Biology, University of Ottawa; Ottawa, K1N 9B4, Canada
[21] Department of Forest and Conservation Sciences, University of British Columbia; Vancouver, V6T 1Z4, Canada
[22] USGS Northeast Climate Adaptation Science Center; St Amherst, 01003, United States of America
[23] School of Agriculture, Food and Ecosystem Sciences, The University of Melbourne; Victoria, 3010, Australia
[24] Institute of Environmental Change & Society, University of Regina; Regina, S4S 0A2, Canada
[25] Fundação Instituto de Pesca do Estado do Rio de Janeiro; Rio de Janeiro, 24030-020, Brazil
[26] Michael Williams & Associates Pty Ltd; Waverton, 2060, Australia
[27] German Centre for Integrative Biodiversity Research (iDiv), Halle-Jena-Leipzig; Leipzig, 04103, Germany
[28] Argentine Institute for Dryland Research (IADIZA), CONICET and Universidad Nacional de Cuyo; Mendoza, 5500, Argentina
[29] Philosophy Department, Toronto Metropolitan University; Toronto, M5B 2K3, Canada
[30] Arctic Centre, University of Lapland; Rovaniemi, 96101, Finland

[†] Corresponding author: carlos.arnillasmerino@mail.utoronto.ca

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 crisis met in February 2024 to address the urgent

need to reflect on, and identify, our core values and responsibilities as individual professionals and as academic societies. We invited fellow professionals to join this conversation and we share here the result of this discussion, which was informed by: i) our professional experiences; ii) a scoping review of the mission and vision statements of 73 professional ecological societies from across the globe, including codes of ethics and statements of values for researchers and professionals, and several statements that other professions use to guide their practice (Ortiz *et al.* 2024 and references therein); and iii) direct conversations with people facing environmental crises in the vicinity of Conguillío National Park, in Chile, where our meeting was held.

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, are people trained in environmental and conservation sciences, and other professionals working with ecosystems. Our mindset, knowledge, aptitudes, skills, and training help us in understanding, researching, and managing social-ecological systems. These ecosystems 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 Western societies tend to value disproportionately short- over long-term wellbeing, protecting ecosystems only when they are of immediate instrumental value to us. 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 us, fail to grasp that the survival of humans depends entirely on the biodiversity, function, services, and contributions that are provided by natural ecosystems (those not controlled by humans) locally and globally. Further, the groups of people who acknowledge the intrinsic value of all

ecosystems and those who 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 natural ecosystems —and the services provided by them— are preserved, while human-controlled ecosystems are insufficient to secure sustainability. 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.

Understanding Nature as the whole ecosystem —including humans—, we embrace as our core collective duty taking care of Nature. Considering our multiple roles as professional ecologists, 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 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 and knowledge, embracing inter- and transdisciplinarity, and different academic backgrounds, ways of knowing, and cultural knowledge.

Our roles and responsibilities

We, professional ecologists, 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 economic, health, cultural, and other aspects, all of them important and interconnected. The following paragraphs describe the responsibilities derived from our core shared values in our most conspicuous roles.

General Responsibilities

In our practice, we:

- **Ground our practice within the framework of social and environmental justice** to support an equitable distribution of wealth, resources, opportunities, and access to a healthy environment for current and future generations.
- **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 communicating the bases of our educated guesses transparently so that the certainties and uncertainties that we infer from them are understandable.
- **Improve the interconnection between society and ecosystems** by helping to conserve, restore, understand, or advance the sustainable use of these 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.
- **Are always attentive** to situations that may require our participation in one or more roles, and also always addressing the effectiveness of our actions.

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 discipline 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 to 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 we are representing nature's and society's interests.
- 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 judgment) 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 political and economic pressures to sway 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.

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.
- 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, trying to bring awareness of alternative values, ways of thinking, or issues faced by society. In these roles, we:

- Base recommendations on the best available science when advocating for solutions.
- Learn about the issue, the solutions, and their local impact, and what has been done before to effectively address it, recognizing there are different schools of thought and theories of change in terms of what works. In this way, we can co-design effective ways to create change and recognize the principles and values of alternative positions, as well as the consequences of advocacy and activism in a local context.
- Recognize that successful advocacy and activism requires skills (for example, in developing policy, organizing, mobilizing, or leadership), and actively develop these to build capacities.
- 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.
- 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 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.
- Recognise that a societal transformation towards a more sustainable future is urgent, but also that long-lasting societal change takes time.