

GOVERNING WITH THE LIVING WORLD

From material dependence to legal recognition and shared governance

A technical case for the institutional representation of non-human animals, species and ecosystems

CENTRAL PROPOSITION

Every human organisation depends on non-human life and ecological processes. Yet its dependencies and the interests affected by its activities remain fragmented across economics, environmental law, animal welfare, insurance and governance. This note proposes accountable forms of representation that bring those interests into decisions, with powers and protections adapted to the beings and ecosystems concerned.

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Who works, who counts, who speaks?

Consider a cooperative that produces food, maintains a landscape and employs local residents. Its statutes give a voice to workers, users, public authorities and investors. Yet soil organisms sustain fertility, pollinators contribute to crop production, water cycles constrain the project, and neighbouring species absorb part of its effects. The cooperative can pay for an animal's veterinary insurance, incur liability for harm and finance habitat restoration. In this illustrative case, however, the affected non-human interests have no designated representative when land use, procurement or investment is decided.

Every human organisation is embedded in the living world. Public administrations, companies, cooperatives and associations depend on food webs, soil formation, pollination, microbial processes, climate regulation and water cycles. Their decisions also affect the beings and ecosystems that sustain these functions. The question is one of institutional coherence: how should an organisation account for these dependencies and represent the non-human interests materially affected by its activities?

Answering this question requires distinctions: between an individual animal and a species, between a forest and a virus, between sentience and ecological function, between intrinsic value and economic usefulness, and between a right, a protected interest, legal standing and legal personality. It also requires procedures that connect scientific evidence, legal duties and explicit judgments about conflicting interests to organisational decisions.

Question	Existing response	Institutional gap
What sustains human activity?	Ecosystem science and economic valuation describe dependencies.	Contribution rarely creates a voice in the decision.
What is already protected?	Animal welfare, species protection and ecological-damage law protect selected interests.	Protection is fragmented and often activated after harm.
Who may represent nature?	Guardians, public bodies, associations and scientific committees already do so in some systems.	Mandates, evidence, powers and accountability vary widely.
How can organisations act now?	Corporate-board, cooperative and Zoöp experiments provide prototypes.	A lawful, contestable and evaluable model is still needed.

PROPOSED DEFINITION

Interspecies governance is the set of legal, institutional and decision-making arrangements through which human organisations identify, represent, weigh and protect the scientifically evidenced interests of non-human animals, species and ecosystems affected by their decisions, while retaining accountable human responsibility for judgment and action.

Representation makes these interests present when options are assessed, resources allocated and responsibilities assigned.

Scope of this note

This note makes a technical case for institutional representation, drawing on law, ecology, organisational theory, economic evidence and international experiments. It develops practical principles for appointing representatives and assigning them powers, explains how these roles can operate in shared governance, and examines a specific application in French sociétés coopératives d'intérêt collectif (SCICs), or collective-interest cooperatives. It concludes with proposals for legal implementation and independently evaluated pilots.

Executive summary

Seven findings

- 1. Dependence is universal.** Every human organisation depends on non-human organisms and ecological processes. Maintaining these relationships is a condition of its continuity and resilience.
- 2. Economic visibility is growing.** Pollination, soil fertility, water regulation and other contributions are increasingly measured. The World Bank estimates that collapse of selected ecosystem services could reduce global GDP by US\$2.7 trillion annually by 2030 [6]. But a price is neither a complete value nor a sufficient basis for rights.
- 3. Law already recognises fragments.** French and European law recognise animal sentience, punish cruelty, allocate liability and repair ecological damage [11-17]. Non-humans are therefore not legally invisible, but their status is inconsistent and usually lacks procedural voice.
- 4. Representation is already practicable.** Courts and legislatures have created guardians and representative bodies for rivers, forests and lagoons; organisations have appointed a Nature director or an independent Speaker for the

Living [33-47]. Results show both promise and the danger of symbolic rights without powers, resources or accountability.

5. **Different interests require different protections.** Sentient animals have welfare interests; species have continuity and habitat interests; ecosystems have integrity and regenerative-function interests. The appropriate representation, duties and remedies depend on the entity, the evidence and the decision at stake.
6. **Representation corrects a procedural asymmetry.** The strongest justification is not dependence alone. It is the combination of dependence, human power to impose harm, structurally absent affected interests, existing duties of protection and evidence that decisions are systematically biased when only represented parties count.
7. **Shared governance offers an operational medium.** A defined Guardian of the Living World role can hold a purpose, domain and accountabilities; participate in circles and consent decisions; issue reasoned objections and alerts; and be reviewed against evidence. The human role-holder remains responsible and replaceable.

Seven proposals

1. **Create a representation standard.** Require a defined represented entity, evidence base, mandate, powers, conflicts policy, reasons register, resources, review and remedy.
2. **Use a graduated powers ladder.** Begin with information, agenda and reasoned-response rights; add suspensive alerts, voting rights, standing or narrowly defined vetoes only where the risk and legal basis justify them.
3. **Install a Guardian role.** Place an independent, competent and accountable representative inside the organisation's governance rather than relying only on external consultation.
4. **Pilot a nature-interest college in SCICs.** Under current French law, the vote must formally belong to a human or legal-person associate. A guardian entity could join a statutory college representing ecological continuity; direct votes by a non-human entity would require legal personality or legislative reform [48].
5. **Separate value from price.** Use monetary valuation to reveal dependencies and allocate resources, never to determine who may be destroyed. Maintain legal thresholds, physical indicators, distributional analysis and non-compensable limits alongside accounts.
6. **Adapt insurance and partnership rules.** For animals involved in services, specify workload, welfare, veterinary care, withdrawal signals, retirement, liability and independent oversight. The animal may be a protected beneficiary even where it cannot legally contract.
7. **Evaluate before generalising.** Run bounded pilots with baselines, counterfactuals, published decisions, independent review and sunset clauses. Measure whether representation changes choices, reduces harm and improves ecological and organisational resilience.

THE CORE CLAIM

Human institutions should identify materially affected non-human interests, give them an accountable representative and explain how they are treated in decisions.

1. The institutional blind spot: universal dependence, absent voice

1.1 No human structure exists alone

Human societies are not externally supported by 'the environment'; they are internally constituted through relationships with other forms of life. Food production depends on plants, animals, fungi and microorganisms. Soil structure and nutrient cycling depend on biological communities. Water, disease and climate risks emerge from coupled ecological and social systems. Institutions can redistribute these dependencies across territories and time, but they cannot abolish them.

Edgar Morin's work on complexity and *Terre-Patrie* connects biological, social, economic and political questions that institutions often address in isolation [22]. Applied to governance, this perspective directs attention to feedback, cumulative effects and the relationships that sustain an organisation. Its relevance is methodological: decisions about individual resources must also account for the functioning of the systems to which they belong.

Francis Hallé's botanical work similarly challenges the reduction of a tree to a replaceable unit of timber. A tree is a long-lived architecture, a habitat and a participant in a forest system; a primary forest is not equivalent to a plantation even if both can be counted in hectares [29]. AgroParisTech research connects soil biodiversity, forest resilience, land use and ecosystem functions, showing why governance needs ecological objects, indicators and timescales rather than a generic category called 'nature' [30-31].

1.2 Non-human contributions as public-interest functions

Pollination, decomposition, seed dispersal, soil formation, water filtration, carbon storage, pest regulation and habitat creation generate benefits shared across populations [10]. This note describes them as public-interest life-support functions: the biological and ecological processes that help sustain collective life. This functional category is distinct from the formal status of service public in French law.

Public institutions fund, regulate and insure many activities because they provide indispensable collective functions. The contribution of living systems likewise warrants attention to its continuity, the pressures it faces and the resources needed to preserve it. Recognising these functions can justify habitat protection, ecological monitoring, restoration budgets and a representative mandate within the organisations that depend on them.

1.3 Economic evidence: contribution, dependence and risk

Economic estimates make dependence visible to organisations that routinely ignore physical and ecological information. IPBES reported that more than three quarters of leading food-crop types rely at least partly on animal pollination and estimated the annual market value of pollinator-dependent crop output at US\$235-577 billion in 2015 dollars [1]. Gallai and colleagues estimated the corresponding 2005 value at €153 billion, about 9.5 per cent of world agricultural food production [2]. The figures answer particular counterfactual and market questions; they do not price the existence of pollinators or ecosystems as a whole.

At the macroeconomic level, the World Bank modelled annual global GDP losses of US\$2.7 trillion by 2030 under collapse of selected ecosystem services [6]. The World Economic Forum estimated in 2020 that US\$44 trillion of economic value generation, over half of world GDP, was moderately or highly dependent on nature [7]. This is a measure of economic dependence, not the share of GDP directly produced by ecosystems. The Dasgupta Review places that dependence at the centre of economic analysis: economies are embedded in nature and must account for both produced and natural assets [8].

POLLINATION: FROM BIOLOGICAL CONTRIBUTION TO GOVERNANCE

The US Fish and Wildlife Service illustrates the contribution of the southeastern blueberry bee, *Habropoda laboriosa*: over its short life, one bee can visit as many as 50,000 blueberry flowers and pollinate enough to support the production of more than 6,000 ripe blueberries, valued at approximately US\$20 in that illustration [4]. This connects the activity of an individual organism to a tangible production outcome.

The collective contribution depends on diverse pollinator communities. Across 41 crop systems worldwide, Garibaldi and colleagues found a positive association between wild-insect flower visitation and fruit set, independently of honeybee visitation [5]. Protecting managed hives and conserving wild pollinators are therefore complementary tasks.

For a food cooperative, these findings support a mandate covering local pollinator communities, floral resources, nesting habitat and exposure to harmful practices. Crop-output valuations can inform investment, while ecological monitoring tests whether the conditions sustaining pollination are maintained [3].

1.4 Why productivity cannot be the sole foundation

Calling non-humans workers or agents can correct economic invisibility, but it also creates a danger: a being that does not produce a measurable service may appear worthless. Legal protection cannot depend only on usefulness to humans. A companion animal, a rare plant, an ecologically redundant organism, an old tree and an unpleasant species may have relevant welfare, continuity or integrity interests even when no market value is established. Economic contribution is one reason to pay attention; it is not the constitutional boundary of moral consideration.

2. Non-humans are already present in law - but incoherently

2.1 The French animal paradox

Article 515-14 of the French Civil Code states that animals are living beings endowed with sentience, while providing that, subject to protective laws, they remain governed by the property regime [11]. Criminal Code Article 521-1 directly punishes serious abuse, cruelty and abandonment of domestic, tamed or captive animals; aggravated penalties can reach five years' imprisonment and €75,000 where the act causes death [12]. At European Union level, Article 13 of the Treaty on the Functioning of the European Union requires full regard to animal-welfare requirements in specified policy areas because animals are sentient beings [13].

These provisions recognise attributes and interests of the animal, impose duties on humans and make certain harms independently punishable, while retaining property-law structures. Their combination distinguishes substantive protection from procedural capacity: animals benefit from direct protections, but do not have general legal personality or the ability to bring proceedings themselves. Representation concerns the additional question of who can defend those interests and at what stage of a decision.

2.2 Insurance and liability reveal the same fragmentation

Insurance can cover veterinary costs for animals and may provide a death benefit related to purchase value [14]. Civil liability generally makes the owner or custodian financially responsible for damage caused by an animal; liability insurance is compulsory for some regulated dogs [15]. The legal and financial system therefore recognises the animal successively as a patient, an insured interest, a source of risk, property with a value and a victim of cruelty. The categories respond to different problems, but they are rarely connected into a coherent account of the animal's interests across the life of a project.

Animal-assisted services make the inconsistency particularly visible. Therapy, education, policing, search, mobility and conservation may depend on animals whose status oscillates between equipment, worker, partner and beneficiary. Wijnen and colleagues argue that the language of volunteer, professional or partner has practical consequences for welfare and responsibility [18]. A credible governance model should specify workload, consent and withdrawal indicators, veterinary care, rest, retirement and independent monitoring, even where the contract is formally concluded only by human or legal persons.

2.3 Ecosystems already receive direct legal protection

French law also moves beyond human property loss. Civil Code Article 1247 defines reparable ecological damage as non-negligible harm to elements or functions of ecosystems or to collective benefits derived from the environment. Article 1248 gives standing to public bodies and qualified associations, while Article 1249 prioritises restoration in kind [16]. The Environmental Charter recognises a right to a balanced environment respectful of health, a duty to participate in preservation and improvement, and a precautionary principle for uncertain serious and irreversible damage [17].

This architecture proves that law can identify an ecological interest, grant other persons standing to defend it and direct compensation to restoration without first declaring the ecosystem a human-like person. It is already a form of representation. Its limitation is temporal and procedural: it often operates through administration or litigation after a threat has arisen, whereas governance representation seeks to make the interest present when options are still open.

Legal lens	What it recognises	What remains missing
Property	Control, custody and patrimonial value	The being's own welfare or ecological interest may be secondary.
Animal welfare and criminal law	Sentience and direct protection from specified harms	General standing, voice and continuity across decisions
Insurance and liability	Veterinary need, economic loss and risk allocation	A mandate to represent the animal before the loss
Species and habitat law	Conservation status and ecological thresholds	Organisation-level representation and cumulative effects
Ecological damage	Harm to ecosystem elements, functions and collective benefits	Routine ex ante participation in governance
Legal personhood	Capacity to hold rights, duties, assets or standing through representatives	A carefully delimited mandate, powers and accountability

THE INCOHERENCE TO RESOLVE

Human institutions already insure, punish, protect, compensate and restore in relation to non-humans. They do not yet provide a general method for bringing those recognised interests into the decision that creates the risk.

3. Intellectual and scientific foundations

3.1 Three distinct claims

Arguments for interspecies governance often combine propositions that should remain analytically separate. The first is empirical: human institutions depend on and affect living systems. The second is normative: some non-human beings and collectives have interests or values that humans ought to consider. The third is institutional: those interests require representation, powers and remedies. Evidence for the first claim does not automatically prove the second or third; each bridge must be justified.

Tradition	Contribution	Design implication
Complex thought - Morin	Parts, wholes and crises are interdependent; reduction produces institutional blindness [22].	Represent relationships, feedback and long time horizons, not isolated assets.
Natural contract - Serres	The social contract must account for the material world that bears collective action [20].	Add reciprocal duties and ecological limits to political and legal arrangements.
Standing - Stone	Legal systems routinely speak for entities unable to appear personally; guardians can give an injured natural object standing [19].	Define standing, guardianship and remedies without equating nature with a human.
Parliament of things - Latour	Collectives are constituted by humans and non-humans, with scientists and spokespersons mediating claims [21].	Make evidence, spokespersons and contestation visible inside deliberation.

Tradition	Contribution	Design implication
Relational anthropology - Descola	The nature/culture division is one ontology among others [23].	Avoid treating one Western legal category as the only possible relation to living systems.
Diplomacy - Morizot and Despret	Other beings must be approached through traces, practices and negotiated coexistence, not ventriloquism [24-25].	Require situated inquiry and allow rival interpretations of non-human interests.
Political animal theory - Donaldson/Kymlicka	Domesticated, liminal and wild animals have different relationships and corresponding claims [26].	Use differentiated status rather than universal identical rights.
Capabilities - Nussbaum	Justice asks whether sentient animals can exercise species-relevant forms of flourishing [27].	Translate welfare into positive capabilities, not only avoidance of cruelty.

3.2 Plants, forests and soils: ecological scales of representation

Hallé’s work is relevant to institutional imagination because plant individuality, longevity and forest architecture do not fit an animal-centred model of a bounded, mobile subject [29]. Soil research makes the point even more strongly: functions emerge from communities, interactions and physical structures rather than from a single charismatic organism. AgroParisTech programmes study relations among soil biodiversity, land use, climate, agroecology and ecosystem services [30-31].

The FAO-led State of Knowledge of Soil Biodiversity synthesises evidence on the role of soil organisms in nutrient cycling, plant production, water filtration and carbon dynamics [32]. It also identifies pressures associated with land-use change, pollution and agricultural practices, and calls for sustained monitoring. For governance, the relevant object is therefore both the soil community and the conditions that support its functions. A representation mandate can require biological indicators alongside physical and chemical measures, and assess how management decisions affect recovery and long-term fertility.

3.3 Sentience matters, but it is not the only route to protection

The 2024 New York Declaration on Animal Consciousness states that there is strong scientific support for conscious experience in mammals and birds and at least a realistic possibility in all vertebrates and many invertebrates, including insects [28]. This strengthens welfare claims where credible sentience is possible. It does not resolve every taxonomic boundary, and claims of plant consciousness remain scientifically contested. Ecosystems, species and plants can still merit protection through integrity, continuity, vulnerability, cultural relation and life-support function even if sentience is not established.

A PLURAL FOUNDATION

Interspecies governance need not depend on one theory of value. It can combine duties arising from sentience, ecological integrity, dependence, vulnerability, cultural relations, precaution and justice. The institution must state which basis it uses in each case.

4. From dependence to representation

4.1 Why dependence alone is insufficient

Material dependence establishes why an organisation must take ecological conditions seriously. The case for representation adds a normative and institutional argument: which non-human interests warrant protection, how does the organisation affect them, and why are existing decision procedures insufficient? Making these steps explicit connects ecological evidence to duties and decision rights without treating an empirical relationship as a complete justification for a legal status.

4.2 The bridge argument

- 1. Material dependence.** The decision-maker relies on or materially affects a living being, population, species or ecosystem.
- 2. Relevant interest.** There is evidence of welfare, continuity, habitat, integrity, regenerative capacity or another legally or normatively relevant interest.
- 3. Asymmetric power.** Humans can impose substantial effects while the affected non-human entity cannot participate through ordinary institutional channels.
- 4. Systematic underrepresentation.** Costs borne by absent interests are likely to be discounted, externalised or noticed only after damage.
- 5. Existing public duties.** Law and policy already impose animal-welfare, environmental, precautionary, restoration or sustainable-use obligations.

6. Institutional fit. A representative mechanism can improve reasons, evidence and accountability at proportionate cost without erasing legitimate human needs.

When these conditions are jointly present, representation is a procedural response to a structural asymmetry. It does not predetermine the outcome. A guardian may lose an argument after necessity and proportionality are examined; the gain is that the interest cannot disappear silently.

4.3 Representation without anthropomorphism

The representative constructs a reasoned claim from ecological data, ethology, veterinary evidence, local and Indigenous knowledge where relevant, legal standards and observed effects. This is similar to other forms of trustee or guardian representation: the representative interprets an interest under a mandate and remains answerable for the quality of that interpretation.

This interpretation must be contestable. Competing evidence should be recorded; affected human groups and scientific disciplines should be heard; the representative should disclose uncertainty; and decisions should specify what evidence would trigger revision. A guardian's authority is bounded by the mandate and by procedures for scrutiny, challenge and removal.

Representation model	Strength	Risk	Necessary safeguard
Delegate	Follows a clearly defined instruction or threshold	Cannot respond to unforeseen complexity	Narrow mandate and escalation rule
Trustee/guardian	Exercises judgment for a protected interest	Paternalism or proxy capture	Competence, reasons, review and removal
Scientific committee	Evidence quality and plural expertise	Technocracy; values hidden as facts	Separate factual assessment from normative arbitration
Citizen/territorial panel	Situated knowledge and legitimacy	Local preference may displace ecological evidence	Ecological baseline and conflict-of-interest rules
Plural guardians	Makes disagreement visible	Delay and diffusion of responsibility	Defined decision rule and minority report

5. Who or what should be represented?

5.1 The represented entity must be specified

'Nature' is too indeterminate for most decisions. A governance mandate should identify the represented entity at the scale at which effects, evidence and remedies can be assessed: an identified animal; a group involved in a service; a local pollinator community; a species population; a river catchment; a forest ecosystem; a soil community; or a coupled ecological process. The boundary may be revised, but it cannot remain rhetorical.

Entity	Primary interest	Evidence	Possible instrument
Sentient individual animal	Welfare, bodily integrity, agency, species-specific flourishing	Ethology, veterinary science, behaviour, welfare indicators	Protected-beneficiary protocol; guardian; standing for welfare harms
Animal group in a project	Workload, habitat, social relations, care and retirement	Individual and group welfare monitoring	Partnership charter; independent welfare representative
Population or species	Continuity, genetic diversity, viable habitat and migration	Population trends, conservation status, habitat models	Conservation threshold; species guardian; planning duty
Plant or tree	Continued development, habitat role, cultural and ecological relation	Botany, arboriculture, site ecology	Tree/forest guardian; preservation and restoration duties
Ecosystem or river	Integrity, connectivity, regenerative capacity and ecological functions	Hydrology, ecology, thresholds, cumulative effects	Legal personhood or protected interest; guardian body; standing
Soil community	Biological activity, structure, fertility and recovery	Physical, chemical and biological indicators	Soil-health covenant; monitoring and restoration account
Microbiome	Functional diversity and stability	Metagenomics, functional indicators, health evidence	Precaution and stewardship obligation
Virus or pathogen	No presumption of individual rights; ecological function may be relevant	Epidemiology, virology, ecosystem science	Public-health and One Health governance; containment under necessity/proportionality

5.2 Matching legal protections to relevant interests

Legal systems already differentiate rights by the nature of the holder and the protected interest. A company can own property but cannot marry; a child has rights exercised through representatives; future generations may be considered

without present legal personality. Non-human representation can likewise be differentiated. Equality need not mean identity of content, capacity or remedy.

A defensible model begins with interests and duties, then asks which legal capacities are needed. Many cases can be addressed through mandatory consideration, welfare standards, ecological thresholds, representation and restoration. Legal personality can provide continuity, asset-holding and standing through an authorised representative. Its added value should be assessed against mechanisms that already protect the relevant interest.

NON-COMPENSATION PRINCIPLE

A monetary benefit should not automatically compensate for cruelty, species extinction or the crossing of a critical ecological threshold. Some constraints are side-constraints or minimum conditions; only impacts within the remaining lawful and ecologically viable space should enter ordinary balancing.

6. Hard cases: food, predation, parasites and viruses

6.1 The legal duties fall primarily on human decision-makers

Predation, parasitism and competition are features of ecological relationships. Interspecies governance addresses human choices that affect those relationships: how agriculture, hunting, fishing, disease control and habitat management are organised. The institutional challenge is to assign duties of assessment, care and justification to the people and organisations able to change the conditions concerned.

Interests may conflict across ecological scales. A measure protecting an individual animal can affect a population or habitat; controlling a vector can protect health while harming other organisms. Assessments should therefore identify the target, ecological relationships, expected benefits and collateral effects. Decisions require a contextual account of risk and function, supported by evidence and open to revision.

6.2 Food systems: sustainable use, welfare and transition

Sustainable harvesting depends on recruitment, age structure, migration, trophic relations, spatial distribution, uncertainty and cumulative pressures. FAO fisheries guidance uses reference points and harvest-control rules adapted to the population and management context. The Convention on Biological Diversity's Addis Ababa Principles likewise support adaptive, science-based management that avoids long-term decline [53-54]. These approaches link permitted use to ecological condition and the capacity to recover.

A governance framework can authorise cultivation, livestock farming, fishing and hunting while imposing differentiated requirements: legality and legitimate purpose; avoidance of threatened populations; ecosystem reference points; sentience-based welfare; least-harm methods; waste reduction; distributional and food-security analysis; traceability; and periodic revision. Social acceptability is relevant to implementation and transition, but it cannot by itself override binding welfare rules or ecological limits.

6.3 Viruses, pathogens and the One Health approach

Whether viruses are alive remains debated because they evolve and reproduce through host machinery but lack autonomous metabolism and cellular organisation. The Microbiology Society presents the question as unresolved; Koonin and colleagues argue that viruses are not alive under a replicator-based framework, while Forterre defends a view that distinguishes the virus particle from the infected cellular phase [50-52]. Law need not settle this ontological debate before protecting public health.

The WHO One Health approach recognises that human, animal, plant and ecosystem health are closely linked [49]. It supports integrated surveillance, prevention and coordination across sectors. Pathogen control and eradication programmes can pursue the legitimate purpose of protecting life and health, with measures assessed for necessity, proportionality, effectiveness and collateral ecological effects. The relevant governance scale combines the specific health threat with the surrounding ecosystem; the mandate must define which interests and functions are at stake.

6.4 A common arbitration test

Test	Question	Required record
Legality and purpose	Is the intervention lawful and is its purpose legitimate and explicit?	Legal basis; responsible authority; stated objective
Evidence	Which beings, functions and thresholds are affected, with what uncertainty?	Baseline; data quality; rival interpretations
Necessity	Is intervention required, or can the objective be achieved without the harm?	Alternatives considered
Proportionality	Is the scale and duration of harm proportionate to the protected purpose?	Magnitude, duration and distribution

Test	Question	Required record
Least harm	Are more selective, humane or reversible methods available?	Method comparison and reasons
Ecological viability	Do population and ecosystem indicators remain within safe bounds?	Reference points and stopping rules
Sentience and welfare	Where sentience is established or realistically possible, how is suffering prevented?	Welfare protocol and monitoring
Reversibility and repair	Can the decision be stopped, corrected and restored?	Alert, contingency, funding and restoration plan
Review	Who can challenge the evidence or mandate?	Appeal, minority report, audit and review date

DECISION RULE

Representation creates a duty to hear, justify and remain within lawful ecological and welfare limits. It does not create an absolute prohibition on all human use of living beings.

7. What experiments around the world already show

Rights-of-nature and organisational experiments differ in legal level, represented entity, guardian structure and enforceability. They should not be grouped as a single model. Their comparative value lies in identifying which institutional components make recognition operational.

Experiment	Mechanism	Lesson
Ecuador, Constitution (2008)	Nature is a subject of rights; any person may call for enforcement of rights to existence, maintenance, regeneration and restoration [33].	Constitutional recognition can create standing, but implementation depends on courts, administration and political economy.
Te Urewera, New Zealand (2014)	Former national park became a legal entity with rights, powers, duties and liabilities, governed through a statutory board [35].	Personhood can reframe ownership, but representation and management design do the operational work.
Te Awa Tupua / Whanganui River, New Zealand (2017)	The river is a legal person represented by Te Pou Tupua, with one nominee from the Crown and one from iwi [34].	Plural guardianship and a negotiated worldview can anchor long-term representation.
Taranaki Maunga, New Zealand (2025)	Legislation recognises a legal person and establishes governance reflecting collective relationships [36].	The model is evolving beyond one river and remains context-specific.
Atrato River, Colombia (2016)	Constitutional Court recognised the river as a subject of rights and ordered joint state-community guardianship [37].	Community guardians and biocultural rights broaden expertise; implementation capacity remains decisive.
Mar Menor, Spain (2022-2025)	Law grants rights to the lagoon and creates a representatives committee, guardians commission and scientific committee; the Constitutional Court upheld the law [38-39].	A three-body design separates representation, monitoring and science, but coordination and resources must be specified.
Ganga and Yamuna, India (2017)	A state High Court recognised rivers as legal persons; the Supreme Court stayed the order [40].	Jurisdiction, liability, territorial scope and guardian duties must be designed before personhood is declared.
Faith in Nature, United Kingdom (2022)	A legal entity acting through human representatives was appointed to the company board to give nature a voice and vote [44-45].	Corporate governance can prototype representation without waiting for national personhood law; independence and corporate-duty fit require scrutiny.
Zoöp, Netherlands and elsewhere	An organisation appoints an independent Speaker for the Living and follows an annual learning cycle for ecological regeneration [46].	A role, evidence process and recurring cycle may matter more than symbolic language.
Embassy of the North Sea, Netherlands	Artistic, research and deliberative practice speaks, listens and negotiates from the perspective of the North Sea [47].	Cultural and deliberative prototypes can expand perception, but formal authority must be separately established.

7.1 Recurring institutional components

- 1. A bounded subject.** The river, forest, lagoon, species population or organisational ecological footprint is identified.
- 2. A human office.** Named guardians or bodies are authorised to interpret and defend the interest.

- 3. Plural knowledge.** Scientific expertise is combined with territorial, community or Indigenous knowledge where appropriate.
- 4. Real powers.** Standing, agenda access, voting, monitoring or enforcement gives the representation institutional consequence.
- 5. Resources and continuity.** Funding, information access, secretariat capacity and succession prevent the right from disappearing after announcement.
- 6. Accountability.** Reasons, conflicts, review and remedy constrain the representative as well as the represented institution.

7.2 The main failure mode: recognition without infrastructure

Comparative research warns that rights can remain symbolic where guardians lack independence, data, funding, clear jurisdiction or access to remedies [41-43]. Personhood can also create uncertainty over liabilities or overlap with existing public authorities. Institutional design should therefore specify the represented entity, mandate, evidence, powers, resources and review mechanism, and select the legal form capable of sustaining those arrangements.

8. A proposed institutional architecture

8.1 The Guardian of the Living World

The central proposal is a defined governance role with explicit powers and responsibilities. Its purpose is to ensure that the interests of specified non-human beings, species and ecosystems affected by the organisation are identified, evidenced, represented and followed through the decision cycle. The guardian is human or a legal person acting through humans; the office is accountable for representation, while the competent governing body remains accountable for the final decision.

Role element	Minimum specification
Purpose	Protect the continuity, integrity, welfare and regenerative conditions of the defined living entities affected by the organisation.
Domain	Access to projects, budgets, procurement, risk, land, operations and strategy where material ecological or animal effects may arise.
Accountabilities	Maintain the dependency map; commission evidence; formulate claims; participate in decisions; track commitments; issue alerts; publish an annual report.
Selection	Competence-based and transparent appointment, with independence from the executive and representation of relevant knowledge.
Evidence	Use legal standards, ecological baselines, welfare indicators and documented uncertainty; distinguish facts from value judgments.
Conflicts	Declare financial, organisational and advocacy conflicts; recuse or add a second guardian where necessary.
Term and removal	Fixed term, protected from retaliatory dismissal, removable for defined cause through a transparent process.
Resources	Dedicated budget, information rights, scientific support and access to independent advice.
Accountability	Reasoned positions, decision register, performance review, minority report and external challenge mechanism.

8.2 Shared governance as an implementation medium

Shared governance provides a practical way to institutionalise the role by defining its purpose, domain and accountabilities independently of the person holding it. The role participates in the relevant circle, a group responsible for a specified area of activity. Information is shared; proposals are tested against stated constraints; and objections must show a reasoned risk to the purpose or viability of the organisation or represented living system.

Consent-based decision-making is especially useful when correctly understood. Consent does not mean unanimity or moral agreement. It asks whether a proposal is safe enough to try within defined limits and whether a reasoned objection reveals a material risk. The guardian's objection should therefore be evidence-bearing and integrative: it must identify the affected entity, legal or ecological basis, expected harm, uncertainty and possible modification. Where a critical legal or ecological threshold is threatened, the rules may convert the objection into a suspensive alert or veto.

Shared governance also permits distribution of the function. A strategic circle can set ecological commitments; operational circles can hold specific habitat, animal-welfare or resource accountabilities; a double-link can carry information between levels; and the guardian can convene a scientific or territorial panel. Rotation and peer review reduce personal capture, while a stable mandate preserves continuity.

8.3 A graduated powers ladder

Level	Power	Use
1	Information right	Timely access to relevant data, plans, incidents and contracts
2	Agenda and inquiry	Ability to place an issue on the agenda and require an evidence response
3	Reasoned-response right	Decision-maker must answer the guardian's claim in the record
4	Consultative opinion	Formal non-binding opinion published with the decision
5	Suspensive alert	Temporary pause to obtain evidence, consider alternatives or prevent irreversible harm
6	Vote	Participation in a board, circle, college or assembly under defined weighting rules
7	Standing or referral	Ability to refer the issue to a regulator, mediator or court
8	Narrow veto	Reserved for specified unlawful acts or critical ecological/welfare thresholds

The appropriate level depends on severity, reversibility, legal basis and institutional context. Giving a guardian a ceremonial seat with no information right is weak; granting an undefined veto over all organisational activity is unsafe. Powers should be explicit, proportionate and reviewable.

8.4 Representation standard

TEN MANDATORY FIELDS

1. Represented entity and boundary. 2. Protected interests. 3. Evidence and uncertainty. 4. Legal and normative basis. 5. Representative and selection method. 6. Powers. 7. Conflicts and independence. 8. Resources and information rights. 9. Decision record and remedy. 10. Review, sunset and succession.

9. The SCIC as a French pilot vehicle

9.1 What current law permits

A société coopérative d'intérêt collectif is designed to produce or supply collective-interest goods or services with social utility. Under Article 19 septies of the 1947 Cooperative Act, an associate must be a natural or legal person contributing to the cooperative; at least three categories of associates are required. Article 19 octies permits three or more voting colleges. Unless the statutes provide otherwise, colleges have equal votes; where weights differ, no college may hold more than 50 per cent or less than 10 per cent of total voting rights, and capital contribution cannot determine the weighting [48].

A bee colony, forest or river without recognised legal personality cannot therefore directly become an associate or cast a vote under current law. The legally sound immediate route is to admit a human or legal-person guardian - for example an independent association or foundation with an appropriate purpose - and allocate that associate to a statutory nature-interest college. The vote legally belongs to the associate; the statutes and mandate require it to be exercised for the defined non-human interests. Direct membership by an ecosystem would require recognised legal personality and compatibility with cooperative law, or legislative reform.

9.2 Model for a nature-interest college

Component	Proposed pilot rule
Represented perimeter	The ecosystems, species and animals materially affected by the cooperative's statutory activity and territory
Associate	Independent qualified association, foundation or other legal person; alternatively a natural-person guardian with protected independence
College	Nature-interest college with a statutory voting weight within the legal 10-50 per cent range; 20 per cent can be tested as a starting hypothesis, not a universal rule

Component	Proposed pilot rule
Mandate	Ecological integrity, animal welfare, resilience and restoration; exclusions and conflicts stated
Inputs	Annual dependency and impact map, species/habitat baseline, welfare indicators, incidents and cumulative effects
Powers	Agenda access, information, vote, reasoned opinion and suspensive alert for defined critical thresholds
Accountability	Published voting reasons, conflict declarations, annual review and an independent challenge panel
Funding	Protected budget financed by the cooperative, without executive control over individual positions

9.3 Shared-governance articulation

The college should not be isolated at the annual general meeting. The Guardian role can be double-linked to operational and strategic circles, so that ecological interests enter project design, procurement and incident response. The college retains the formal vote; the role provides continuous governance. This separation avoids two opposite failures: an annual symbolic vote disconnected from operations, and an informal ecological adviser without statutory weight.

9.4 Questions the statutes must answer

- Who appoints and removes the guardian associate, and on what grounds?
- Which living entities and territories fall within the mandate?
- How are conflicts between animal welfare, ecosystem integrity, food production, employment and financial viability recorded and arbitrated?
- Which thresholds trigger an alert, and who can lift it?
- How are scientific disagreement, confidentiality and emergency decisions handled?
- How does the cooperative prevent the executive from defunding or capturing its own ecological counter-power?

THE PROPOSED LEGAL MECHANISM

A qualified human or legal-person associate exercises the vote under a defined representation mandate. The cooperative's statutes establish the college, its voting weight and its accountabilities, subject to review for compatibility with the cooperative's legal form and applicable law.

10. Legal, accounting and insurance pathways

10.1 A ladder of legal instruments

Instrument	Effect	When appropriate
Voluntary charter	States principles and reporting commitments	Early experiment; weak enforceability
Statutory organisational role	Creates information, agenda, opinion or voting powers	Companies, associations, cooperatives and public bodies
Contract or covenant	Allocates care, monitoring, restoration and funding duties	Animal-assisted services, land management and project partnerships
Regulatory duty to consider	Requires assessment and reasoned response	Planning, procurement, authorisation and sector regulation
Standing	Allows a guardian to seek administrative or judicial review	Where ordinary enforcement systematically misses the interest
Substantive rights	Protects existence, regeneration, welfare or integrity	Where a stable legal interest and remedy can be specified
Legal personality	Provides continuity, asset-holding and procedural capacity through guardians	Only where these capacities add value beyond narrower tools
Constitutional recognition	Entrenches principles and directs legislation	Long-term public settlement; requires implementing institutions

10.2 Constitutional and legislative route in France

In France, the Environmental Charter already provides a constitutional foundation for environmental protection [17]. A further reform could establish a general duty to represent materially affected non-human interests, with legislation specifying the entities concerned, the representative institutions and their powers. The following clause illustrates this possible direction.

ILLUSTRATIVE CONSTITUTIONAL CLAUSE FOR DEBATE

Public authorities and legal persons shall take into account the conditions of continuity, regeneration and integrity of the living systems on which human and non-human communities depend. The law determines the conditions under which the interests of non-human living beings, species and ecosystems are represented and protected.

This proposal assigns duties to human institutions and leaves the detailed representation mechanisms to legislation. Its implementation would require definitions, standing, remedies and coordination with property, environmental, agricultural, public-health and animal-welfare law. Parliamentary scrutiny and legal analysis would need to assess its scope and enforceability.

Constitutional reform is one possible long-term route. Organisational statutes and mandates offer more immediate opportunities for experimentation within existing law, including the SCIC framework described in Section 9. Lessons from these pilots could inform targeted legislative changes to representation, standing, accountability and funding.

10.3 Accounting: recognise contribution without commodifying existence

Accounting should make dependencies, condition and restoration obligations visible. It should not put a sale price on every living entity. An organisation can maintain a dependency register, physical ecological accounts, threshold indicators, restoration provisions and expenditure tracking alongside financial statements. Monetary valuation is useful for scenarios, budget allocation and avoided costs; legal limits and physical measures remain controlling where damage is non-compensable.

Layer	Example	Decision use
Dependency	Pollination, soil biological activity, water quality, habitat continuity	Identify operational vulnerability and represented entities
Condition	Population trend, soil carbon/structure, welfare score, water status	Track state against baseline and thresholds
Pressure	Pesticide load, extraction, mortality, fragmentation, working hours	Locate organisational drivers
Commitment	Habitat restoration, veterinary care, corridor creation, reduction target	Assign budget, owner and timetable
Monetary scenario	Replacement cost, avoided loss, restoration cost or output contribution	Make financial exposure visible without claiming total value
Decision record	Reasons for accepting, modifying or rejecting guardian advice	Create auditability and organisational learning

10.4 Insurance and interspecies partnership

Insurance currently protects owners, operators and veterinary expenditure more readily than it protects the continuity of an interspecies relationship. A pilot interspecies partnership protocol could name the animal or group as a protected beneficiary and bind the human parties to care, workload, habitat, emergency, retirement and rehoming obligations. It can require an independent welfare representative and finance veterinary treatment. Where an animal cannot legally consent, behavioural assent and withdrawal indicators should still be monitored and respected.

For ecosystems, restoration bonds, dedicated reserves and environmental-liability coverage can secure resources if harm occurs. They should not create a licence to damage. The hierarchy remains avoid, reduce and only then repair or compensate; critical thresholds and unlawful harms remain outside ordinary financial balancing.

11. Objections, risks and safeguards

Objection or risk	Response	Safeguard
Humans will always speak for nature.	Yes. Representation is mediated, as it is for children, protected adults, future interests and legal persons.	Make the mandate, evidence, uncertainty and accountability explicit.
The representative may project personal values.	Interpretation is unavoidable but can be disciplined and challenged.	Plural evidence, conflict disclosure, rival opinions, reasons and review.

Objection or risk	Response	Safeguard
Nature has conflicting interests.	There is no single natural interest; predators, prey, farms and pathogens can conflict.	Define represented entities and use explicit arbitration rules.
This will paralyse decisions.	Poorly designed vetoes can; information and reasoned-response rights need not.	Graduated powers, time limits, emergency procedure and narrow veto grounds.
Economic survival and jobs will be ignored.	Human welfare and organisational viability remain legitimate interests.	Integrated proportionality, transition plans and distributional analysis within hard legal/ecological limits.
Personhood creates unlimited liability.	It can if statutes fail to allocate powers and duties.	Specify liability, territory, assets, guardian authority and relationship with public bodies.
Valuation commodifies life.	It does when price becomes the sovereign measure.	Use plural accounts and non-compensable rights and thresholds.
Charismatic species will dominate.	Public attention is uneven and can distort priorities.	Ecosystem and function-based baselines; attention to soils, microbes and uncharismatic species.
The role will be captured or greenwashed.	A ceremonial representative can legitimise unchanged practice.	Independent funding, real powers, published dissent, external audit and outcome evaluation.
Urgent health action will be slowed.	Emergency control of pathogens is legitimate.	Predefined emergency powers, necessity, least harm, documentation and retrospective review.

11.1 Minimum safeguards

- 1. Differentiated protection.** Rights, capacities and remedies must be matched to the relevant interests and entities.
- 2. Contextual ecological assessment.** Evaluate risks, functions and interactions at the appropriate population, habitat and ecosystem scales.
- 3. Transparent interpretation.** The representative must expose evidence, uncertainty and normative choices.
- 4. Adequate resources.** The office requires information, budget, time, expertise and enforceable access.
- 5. Non-compensable limits.** Critical ecological and welfare limits constrain financial trade-offs.
- 6. Independent and accountable representation.** The guardian has a defined term, review procedure and available remedies.
- 7. Context-specific thresholds.** Reference points and control rules must reflect the entity, place and management conditions.
- 8. Evaluation before generalisation.** Pilots should publish both intended and unintended effects.

12. A pilot-and-evaluate programme

12.1 Three bounded pilots

Pilot	Setting	Core test
A. SCIC nature-interest college	Food, energy, land, water or territorial cooperative	Can a statutory proxy vote and continuous Guardian role alter decisions while preserving legal clarity and organisational capacity?
B. Animal partnership protocol	Animal-assisted therapy, education, conservation, mobility or public-interest project	Do protected-beneficiary status, welfare indicators and withdrawal rules improve care and risk allocation?
C. Territorial ecosystem guardian	River, wetland, forest, soil or infrastructure project	Do agenda rights, suspensive alerts and restoration funding reduce cumulative harm before authorisation or investment?

12.2 Common protocol

- 1. Baseline.** Map human and non-human stakeholders, dependencies, applicable law, ecological condition, welfare and existing decision rights.
- 2. Mandate.** Specify the represented entity, interests, evidence standard, guardian selection, powers and conflicts.
- 3. Decision sample.** Predefine which investments, projects, incidents and policies enter the pilot.
- 4. Counterfactual.** Document the organisation's prior process or a comparable decision without representation.
- 5. Public register.** Record advice, objections, decisions, reasons, commitments, alerts and follow-up, subject to lawful confidentiality.
- 6. Independent evaluation.** Use a mixed panel of legal, ecological, welfare, governance and affected-community expertise.

7. Sunset and revision. Run for a defined period, then renew, modify or stop on published evidence.

12.3 Evaluation questions

Dimension	Indicator examples
Decision influence	Share of decisions reviewed; proposals modified; alerts issued; reasons adopted or rejected
Ecological and welfare outcomes	Threshold breaches, habitat condition, mortality, recovery, welfare and cumulative effects
Legal quality	Compliance gaps found earlier; disputes; standing used; clarity of responsibility
Organisational quality	Decision time, costs, conflict resolution, staff understanding, implementation rate
Independence and legitimacy	Conflict disclosures, perceived capture, diversity of evidence, external challenges
Distribution	Who bears transition costs and receives benefits; effects on workers, users, territories and vulnerable groups
Learning	Changes to baselines, policies, budgets and thresholds after observed outcomes

FALSIFIABLE ADVOCACY

A pilot succeeds only if representation measurably improves decisions, protection and institutional learning at proportionate cost. If it produces ceremony, delay without information, proxy capture or displaced harm, the design must change.

Conclusion: from protection after harm to participation before it

Every human organisation depends on non-human life. Yet human systems recognise those dependencies in fragments: a bee appears in crop-output estimates, a dog in an insurance policy, a farm animal in welfare law, a river in ecological-damage litigation and a forest in conservation planning. The fragmentation can prevent decision-makers from connecting the interests, functions and responsibilities involved.

Institutional representation provides a way to connect them. Relevant interests should be specified, represented through an accountable human office, supported by evidence and granted powers proportionate to risk. Food, health and social needs remain legitimate; conflicts must be assessed under legality, necessity, proportionality, least harm, welfare and ecological viability.

Shared governance makes the proposal operational. A Guardian of the Living World can be designed as a role with purpose, domain and accountabilities, connected to the circles where projects and resources are decided. A SCIC can test a nature-interest voting college through a human or legal-person proxy under current French law. Corporate, territorial and animal-partnership pilots can test other forms. Rights and personhood remain available where narrower instruments do not provide continuity, standing or remedy.

The institutional principle is simple: absence of speech is not absence of interest. A mature human governance system should be able to hear an interest without pretending that the represented being speaks human language; recognise contribution without reducing life to price; and protect ecological conditions without denying the realities of food, health and conflict. The task is not to make nature human. It is to make human institutions answerable to the living world that makes them possible.

ADVOCACY PROPOSITION

Establish a recognised and accountable right of representation for non-human animals, species and ecosystems materially affected by human organisations; begin with bounded statutory roles, voting colleges and guardian mechanisms; evaluate their effects; and build legal personality or constitutional recognition only where the required powers, duties and safeguards justify it.

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