



Working Papers

No. 323

On the Value of Diversity – Biodiversity as a Test of Responsibility for Creation

An expert report by the Working Group
on Ecological Issues of the Commission
for Society and Social Affairs of the
German Bishops' Conference

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Foreword

In addition to climate change, the decline of biodiversity is the second major ecological crisis of our time. Entire ecosystems are in peril, vast areas of rainforest in the Amazon region are being devastated and many animal and insect species are threatened with extinction worldwide. Based on the facts, it can be said that these ominous developments are directly related to our way of life, especially in structural terms. In the search for the causes of the Corona pandemic, science has not least repeatedly drawn attention to the problem of aggressive incursion by humans into nature. It is obvious that we are also increasing the risk posed to humans when we spoil and impair the habitats of animals and plants.

Pope Francis drew our attention to the importance of biodiversity as far back as in his first Apostolic Exhortation *Evangelii gaudium* (2013): “There are other weak and defenceless beings that are at the mercy of economic interests or indiscriminate exploitation. I am speaking about the totality of creation. As human beings, we are not merely beneficiaries, but guardians of their creatures.” In his message for the World Day of Prayer for the Integrity of Creation 2020, the Pope reminded us “that we are part of this interconnected web of life, and not its masters”. Merely these few statements underscore that biodiversity and the crisis it is facing also involves anthropological and theological issues. Consequently, we are called upon to address the role of human beings and their responsibility for the integrity of creation.

Against this background, the Commission for Society and Social Affairs of the German Bishops’ Conference has requested its Working Group for Ecological Issues to prepare an expert text on biodiversity that brings together different perspectives on the

topic – especially from the fields of philosophy, theology, economics and biology. Based on a situational analysis, the expert text identifies the causes of the crisis, presents strategies with which to evaluate biodiversity, discusses theological aspects regarding the importance of our fellow creatures and plants in creation, and then examines concrete approaches to solutions while reflecting on the Church’s own actions.

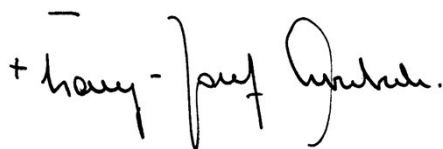
My sincere thanks go out to the members of the Working Group on Ecological Issues and its chairman, Auxiliary Bishop Rolf Lohmann, who prepared this expert text. Our thanks are also due to Prof. Dr. Katrin Böhning-Gaese (Frankfurt), Dr. Michael Feil (Bonn) and Nicole Podlinski (Bad Honnef) for their expert support. The publication, which is the result of a productive interplay between the humanities, social and natural sciences, is aimed at articulating our high regard for nature and biodiversity and to galvanise us into action. In this endeavour, it is also necessary to examine our own Church practice. I am therefore particularly grateful to the actors in the Church mentioned in the Working Papers for providing points of departure for activities promoting biodiversity. We have the task and indeed the duty to stand up for the protection of biodiversity.

The growth and flourishing of God’s creation is not something to take for granted. Each and every person has a duty to assume responsibility for this within the realm of their individual possibilities. The principle of precaution can serve as an important guideline for us. It is far better and easier to protect species and preserve ecosystems than to “mend” ecosystems once they have lost their balance – if this is even possible in the first place. Experience teaches us that small interventions often lead to a need for additional, larger-scale interventions. According to the encyclical *Fratelli tutti*, an open and respectful dialogue is of particular importance in overcoming the social conflicts involved in working for better protection of biodiversity. Humility and

mindfulness are crucial virtues when it comes to the preservation of biodiversity.

St. Francis of Assisi has long been a great example of this. May this saint serve as an example and accompany our activities with his blessing of hope as an advocate. These Working Papers, with the needed foundations they provide, are intended to help us to become more aware, and more deeply conscious, of the true value of the diversity of creation and to surmount the daunting challenge posed by the biodiversity crisis.

Bonn, 26 April 2021

A handwritten signature in black ink, reading "Franz-Josef Overbeck". The signature is written in a cursive style with a small cross at the beginning.

Bishop Dr. Franz-Josef Overbeck

Chairman of the German Bishops' Conference's Commission
for Societal and Social Issues

In a nutshell

Dramatic losses in biodiversity constitute the second major challenge to human survival alongside climate change. Biodiversity encompasses the variety of animal and plant species, genetic resources and ecosystems on Earth. The loss of biodiversity shows that the relationship between humans and nature needs to be redefined. This is the only way to fulfil the Christian mandate to attend to the integrity of creation and to place the focus on an integral ecology, as was underscored as a key task in Pope Francis' encyclical *Laudato si'*.

According to new calculations, about one million animal and plant species worldwide are in danger of extinction. The biomass of many species has declined sharply and entire ecosystems are threatened. The causes of this crisis include the expansive use of space and resources, use of land, for example for agriculture or deforestation, and the excessive introduction of nutrients and chemicals into the environment. Humanity is making excessive use of land, oceans and the atmosphere. Current value systems, such as steadily mounting demands for prosperity, a ruthless pursuit of profit and resource-intensive technology, but also a world view shaped by self-interest, urgently need to be re-evaluated.

Ecosystems provide important services helping meet our basic needs as well as services of a regulating and cultural nature, upon which security, basic material needs, health and social relationships of human beings are based, in short: human well-being and existence. The value of these services can be assessed functionally by measuring the direct and indirect benefits of biodiversity for humans. From an ethical perspective, these approaches are complemented by aspects relating to justice, quality of life and the intrinsic value of nature and then placed in a wider context.

Theologically and biblically, animals and plants must be regarded as fellow creatures having an intrinsic value before God. Thus, animal and plant ethics are also taken into account. A responsible ethical approach seems to make the most sense to this end.

In order to halt the trend toward loss of biodiversity, a new culture of responsibility is needed, focusing on a change in the relationship between humans and nature as well as in the use of ecological resources. Environmental, climate and biodiversity protection must be assigned high priority in all social decisions. Points of departure for improving the situation include a reorientation of agriculture and a more sustainable approach to land use and nutrition, and especially a reduction in meat consumption. Lines of conflict must be identified and shaped along socio-ethical lines with a view to the common good. The Church can contribute a good deal to the protection of biodiversity through her own actions. Moreover, she is called upon as an ethical authority that is promoting an ecosocial change in values as well as a civil society source of impetus for changes in rules, while she offers a space for dialogue as a moderator.

I. Introduction:

Why the Church is speaking out

I.1 Protecting biodiversity: A challenge for human survival

In addition to climate change, loss of biodiversity is at present a second focal point in which the relationship between humans and nature is under critical examination. In the words of Pope Francis, “biodiversity restoration [...] is also crucially important in the context of unprecedented species extinction and degradation of ecosystems”.¹ There are numerous indications that the rapid loss of biodiversity will make it impossible for us to preserve the ecosystem structures known to us, but whose dynamics are still far from completely understood. Halting these developments is a challenge that concerns society as a whole – the state, businesses, citizens, but also the Church. The massive reduction of biodiversity through the expansive use of space and resources, land use and the excessive introduction of nutrients and chemicals into the environment are among the most profound human incursions into the biosphere. This stands in contradiction to the Christian mandate to care for creation as our “common home”.

Biodiversity encompasses the diversity of animal and plant species, genetic resources and ecosystems on our planet. Like a stable climate, biodiversity is one of the most important assets safeguarding human existence. The future development of life on Earth and hence of human civilisation as well crucially depends

¹ Pope Francis: *Message for the World Day of Prayer for the Integrity of Creation* (1 September 2020), https://www.dbk.de/fileadmin/redaktion/diverse_downloads/Messages/2020-Message-World-Day-of-Prayer-for-the-Care-of-Creation.pdf.

on its protection. Biodiversity is of direct benefit to humans, e. g. when it provides services for human health (for a large part of the population, health care is based directly on medicines derived from plant or animal substrates) or when a diverse and varied landscape gives us pleasure. However, it is above all indirectly indispensable because it enables and supports essential “services” of nature such as pure air and water, fertile soil or CO₂ storage in carbon-rich soils (especially peatlands) and in forests.

The report by the UN’s Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) from May 2019² draws attention to an unprecedented, accelerating and dangerous global decline in biodiversity. One million species are at risk, according to the most comprehensive assessment of biodiversity to date. The global biomass of wild mammals has declined by 82 % since 1970, and that of all wildlife by 60 % overall. The responses of the global community so far have been totally inadequate. Far-reaching transformations in many sectors of society are needed to arrest the decline and to protect the fragile ecosystems upon which also humans depend from further destabilisation. The integrity, stability and “health” of the ecosystems upon which we and all other species depend are deteriorating faster than ever. The extinction rate of animals and plants is currently at least ten to one hundred times greater than the normal extinction rate

² Eduardo S. Brondizio et al. (eds.): *Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*, IPBES Secretariat (Bonn 2019). The IPBES Global Assessment Report is the most comprehensive report on the subject ever produced. It is the first intergovernmental report of its kind and builds on the landmark Millennium Ecosystem Assessment of 2005, which provided innovative methods for assessing evidence.

derived from fossil records.³ We are eroding the foundations of our economy, our food security and our quality of life worldwide.

Biodiversity is “our common heritage and humanity’s most important life-sustaining ‘safety net’. But our safety net is being stretched almost to the breaking point,” says Sandra Díaz (Argentina), who co-led the IPBES assessment with Josef Settele (Germany) and Eduardo S. Brondizio (Brazil and the U.S.). The massive loss of species, ecosystems and genetic diversity is assessed as a global, cross-generational threat to human welfare and the evolution of life. The IPBES report hence calls for a “transformative change” along the lines of a fundamental reorganisation of technological, economic and social developments, including their paradigms, goals and values. The loss of biodiversity is also increasingly being recognised at the regional level, however, with many people viewing these developments with great concern and calling for a reversal of the situation. The German Federal Government adopted an initial action programme in 2007 in the guise of the National Strategy on Biological Diversity. Every year, EUR 3 million are earmarked for the promotion of model and demonstration projects in the field of conservation and innovative use of biological diversity. In 2014, for example, the Federal Ministry of Agriculture launched the “Feeding the Bees” initiative. But these approaches are not sufficient. The worldwide “Fridays for Future” movement of young people is making an urgent appeal to politicians and society to address the issues of climate change and the loss of biodiversity in a much stronger manner. The Bavarian “Save the Bees” referendum, in which 1.8 million people took part and which served as the basis for an amendment to the Bavarian Nature Conservation Act adopted by the Bavarian Landtag in July 2019, is also an

³ Jurriaan M. de Vos et al: *Estimating the Normal Background Rate of Species Extinction*, in: *Conservation Biology* 29/2 (2015), pp. 452-462.

indication that awareness in the population is beginning to grow. Church councils and associations have also been heavily involved and have performed important mediation work with the population in rural areas. The evolution of ethical reflections on the question of what protection of the very different species of animals and plants needs to look like and what their value to us is, or should be, in complex trade-offs and conflict situations is only just at the outset, however.

With its hunger for resources, its opening up of ever more land and the stresses this causes, mankind has become the pacemaker and “engineer” of ongoing changes in all areas of the Earth system. In order to take this fact into account, back in 2000 the atmospheric chemist and Nobel laureate Paul Crutzen suggested proclaiming a new geological epoch, for which he coined the term “Anthropocene”.⁴ This literally means “the new age of man”. This fundamental analysis of current relationship between humans and the environment puts the debate on biodiversity within a broader framework, which is also of crucial importance in a theological and ethical classification and evaluation of the situation.

The extent and depth of human intervention in the dynamics of ecological systems are considered a gauge, and are measured scientifically by using critical parameters. For example, CO₂ emissions, removal of fresh water, inputs of nitrates and phosphates into the environment, ocean acidification, loss of biodiversity or population growth in general are measured. It is evident that we are currently in a phase in which the exponential increase of many parameters suggests that we are witnessing a transition to different system dynamics. If one decides to define the Anthropocene as large-scale relevant tipping effects in Earth

⁴ Paul J. Crutzen, Eugene F. Stoermer: *The “Anthropocene”*, in: *Global Change Newsletter* 41 (2000), pp. 17–18.

system dynamics, then today, at the outset of the 21st century, we find ourselves upon the threshold of a new epoch.

We do not know exactly what the new condition and the new dynamics of the Earth system will look like. We can only assume with a high degree of probability that we are in a transition to different system dynamics governing human-environmental interaction and thus also human living space on the planet Earth. The ecological conditions of the Holocene, in which *homo sapiens* evolved over the last 11,700 years, seem to have come to a definite end. It is difficult to assess the extent to which this not only affects changes in non-human nature, but also impairs the quality of life for humans or even threatens the foundations of their lives and thus, ultimately, their survival.

From the perspective of Earth system research, the most critical parameters are not only to be found in the area of CO₂ emissions and climate change, but also in the area of biodiversity in terrestrial habitats – through changes in land use and not least through changes that are brought about through biochemical processes, especially in the current form of agriculture practice.

The new power of human beings in the Anthropocene results in an unprecedented dimension of responsibility. In order to achieve sufficiently stable processes of exchange between nature and society, a new culture of responsibility is needed, at the heart of which is a transformation of the relationship with nature and the use of ecological resources.⁵ The challenges posed by the Anthropocene can only be met through a changed pattern of progress, for which the guiding principle is not the further expansion of access to natural resources, but the co-evolution of

⁵ Cf. Georg Picht: *Das richtige Maß finden: Der Weg des Menschen ins 21. Jahrhundert*, ed. by Carl Friedrich von Weizsäcker, Constanze Eisenbart (Freiburg 2001).

ecological and socio-economic production and regeneration processes. This requires a combination of economic, social and ecological intelligence. Biodiversity is a common global good. “If modern capitalism does not understand and grasp that the fundamental scarcity of the 21st century is the global commons, this ignorance will cause it to perish.”⁶

Safeguarding biodiversity is an all-embracing challenge comparable to the protection of climate, water and soil and is interrelated with these other challenges in many ways. Although it is not the sole cause of species loss, agriculture plays a key role, especially in Germany and Europe.

“In times of rapid loss of biodiversity in Germany, changes are necessary and are possible in many forms: Not only certified organic agriculture, but also conventional agriculture can make a contribution to the preservation of biodiversity. The aim and objective is not only biodiversity, but also the promotion of old livestock breeds and crops in agriculture, as well as a diversity of varieties and landscapes, which in turn offer the foundations for species diversity. Implementation is not the exclusive responsibility of farmers, but rather poses a challenge for society as a whole.”⁷

This can only be achieved in a community of responsibility between landowners and farmers, the food industry and consumers. Public owners such as districts, municipalities or foundations,

⁶ Ottmar Edenhofer: *Das Klima und die Kirche*, in: *zur Debatte – Themen der Katholischen Akademie in Bayern* 1 (2020), pp. 1–5, p. 5. The original German text has been translated into English here.

⁷ Benjamin Schwarz, Michael Rühs, Thomas Beil: *Artenreiche Landwirtschaft auf Kirchengrund. Chancen gelebter Schöpfungsverantwortung. Eine Handreichung zur Umsetzung von Naturschutzmaßnahmen auf kircheneigenem Land* (Regensburg 2018), p. 4.

but also church institutions with their ownership of land, are also called upon. Protection of biodiversity is a highly complex challenge facing society as a whole. In order to be able to preserve the basis for sustainable economic activity, agricultural businesses are dependent on support payments for the desired services as well as a reorganisation of many elements of agricultural policy, food, consumption and land use with sustainability in mind.

1.2 The competence of the Church in the discourse on biodiversity and its limits

Loss of biodiversity is a defining feature of the present epoch that even theology and the Church cannot remain indifferent to. It is an existential question of intergenerational justice, which Pope Francis defines in the encyclical *Laudato si'*: “Intergenerational solidarity is not optional, but rather a basic question of justice, since the world we have received also belongs to those who will follow us.”⁸

The lost balance in the relationship to creation affects the foundations of our culture and our self-understanding. It serves as an occasion for a critical revision of our current guiding values and notions of meaning. It raises questions about the foundations and aims of life and society. The creeping and only slowly perceived, but on the whole dramatic, loss of biodiversity is a “sign of the times”: an epochal event that can be the starting point for a new way of looking for what can offer us a viable future and

⁸ Pope Francis: Encyclical *Laudato si'* on Care for Our Common Home (24 May 2015), 159: Secretariat of the German Bishops' Conference (ed.): *Verlautbarungen des Apostolischen Stuhls* Nr. 202 (4th, corrected edition, Bonn 2018), p. 114. In the following, the encyclical is referred to with the abbreviation *LS* and the respective paragraph number.

salvation today, at what sustains us while giving meaning to our existence. The Christian language of hope and justice must prove itself by encouraging and promoting forces that counter the destruction of biodiversity.

Climate change and loss of biodiversity are symptoms of an epochal change that can only be fathomed in terms of their interaction with energy, consumption, financial and economic models. The term “Great Transformation” has been coined to designate this. At its core, this also needs to be understood as an ethical task. The transformation that is necessary is so all-encompassing that it can be described as a new social contract: “Societies must be placed on a new ‘business basis’. It is about a new world social contract for a climate-friendly and sustainable world economic order”.⁹

This social contract can also be described as a culture of sustainability. It is based on mindfulness and democratic participation as well as global and intergenerational responsibility. The task is to change from an uncontrolled way of doing business and living that is associated with a heavy burden on the environment to a *planetary stewardship* along the lines of a responsible stewardship in the common house of creation. In essence, it is about a cultural change as a catalyst of policy change. Despite far-reaching resolutions in the direction of a global social contract for sustainable development which the United Nations adopted in September 2015 as a normative guideline for world domestic policy until 2030 (*Sustainable Development Goals*), world society has not yet succeeded in changing course. Against our better

⁹ Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen: *Welt im Wandel: Gesellschaftsvertrag für eine Große Transformation* (Berlin 2011), pp. 1 f. The original German text has been translated into English here.

judgement, we remain on the same trajectory of overuse of resources, excessive consumption and global injustice in the “externalisation society”.¹⁰

What is required is nothing less than a transformation of our concepts of development and progress:

“In a word, this calls for ‘changing the models of global development’ and ‘redefining our notion of progress’. Yet ‘the problem is that we still lack the culture necessary to confront this crisis. We lack leadership capable of striking out on new paths’. This vast and pressing task requires, on the cultural level of academic training and scientific study a broad and generous effort at a radical paradigm shift, or rather – dare I say – ‘a bold cultural revolution’.”¹¹

The values of global and long-term responsibility cannot be communicated without a foundation embedded in images of people, the world, nature and hope, as well as in the experiences and structures of a transnational community. Today, “catholicity” is needed in a new way, not in the sense of a denominational concept, but rather in its original meaning as an awareness of the global unity of the human family. This new awareness of global solidarity must be combined with a critical view of the complex conditions underlying action in world society, however. Those

¹⁰ Stephan Lessenich: *Neben uns die Sintflut. Die Externalisierungsgesellschaft und ihr Preis* (Munich/Berlin 2016). The original German text has been translated into English here.

¹¹ Pope Francis: Apostolic Constitution *Veritatis Gaudium* on Ecclesiastical Universities and Faculties (27 December 2017), 3: Secretariat of the German Bishops’ Conference (ed.): *Verlautbarungen des Apostolischen Stuhls* Nr. 211 (Bonn 2018), p. 15; internal quotations from *Laudato si’*.

who want to shape change must analyse the constellations of actors, patterns of action, incentive systems and governance structures that facilitate and enable or that impede transformation.

Traditionally, in the social discourse, the Churches are expected above all to contribute to the generation and stabilisation of an awareness of values. In parts of society, rediscovery of the value of nature is already keenly developed at present. The Church can only set social transformations in motion, however, if individual, institutional and systemic changes interlock. The interaction between changes in practice, value awareness and regulatory systems is crucial in order to promote a socially desirable change. What we are searching for is therefore a positive correlation between (1) pioneers of sustainable concepts and their practice, (2) public communication regarding a change in values and its mediation in education and lifestyles, and (3) political-legal institutional change. The Churches are called upon at all three levels:

- as a platform and space for pioneering groups that put hoped-for changes into practice through exemplary action. The impetus for change is obviously not produced on a sufficient scale by major world conferences, but must instead also come from below, from a large number of different actors, i. e. from civil society through people who practice and think ahead about cultural change. For example, numerous monasteries have managed their land for centuries in such a way that a wealth of special species could thrive and flourish, regardless of changing yield and crop conditions. The living testimony of responsible practice can often convey faith in creation better than any words. It is an absolutely essential starting point for the transformations that are being sought.
- as an ethical authority that promotes ecosocial change in values, strengthening the substance of the change process

and giving it expression and a voice. In essence, it is about global as well as intra- and intergenerational responsibility, which fundamentally aligns with the structure of the Church as a world community and the oldest “global player” as well as with God’s perspective, which views everything *sub specie aeternitatis* and hence, in the long term as well, in terms of its lasting importance. In this, the Church is not simply a “moral agent”, but seeks to rethink things at a more fundamental level, which is necessary especially in view of the question regarding the intrinsic value of animals, plants and ecosystems.

- as a civil society initiator for rule changes at local, national and international levels. To this end, often diffuse and contradictory transformations of values must be translated into consistent ethical and legally enforceable systems of rules. Pope Francis’ commitment forwarded at the 2015 Paris Climate Conference, for example, serves as a role model and is considered to have played a not inconsiderable role in the strong resolutions that were subsequently adopted. This text aims at making a contribution to the further expansion of opportunities to have a socio-political impact in the field of biodiversity protection which can also be perceived in Germany.

In view of the dramatic situation, even Church initiatives for protection of biodiversity fall far short of what is necessary. Citations of existing writings and practices cannot mitigate this unpleasant realisation, but they can focus attention on points of departure for what needs to be done in the future. The Churches are often more learners and mediators than knowers. This means that ecumenical and interreligious as well as natural and social science dialogues are indispensable in the search for a holistic ecology. Of key importance in Church statements is to encourage people to act as well as cultivate an attitude of gratitude and joy

in relation to the gifts of creation, whose beauty and splendour is largely based on the diversity of species – because fear of the future is not best way to encourage a new path to be taken – successful real-life experiences in the present are indispensable.

1.3 Links to existing ecclesiastical writings

Voices from the universal Church

The encyclical *Laudato si'* has set new standards going far above and beyond the Catholic discourse on the environment and also offers a ground-breaking theological-ethical impetus for the topic of biodiversity (LS 68–69). Decisive in methodological terms are its ecosocial approach of “integral ecology”, its liberation-theological approach, which also takes into account power conflicts and systemic causes of exploitation of people and nature, as well as its spiritual approach, which conceives of the commitment to sustainable development directly as an expression of Christian faith, while also perceiving the voice of God in the beauty and exclamation of creation. It dedicates eleven text numbers (LS 32–42) to the loss of biological diversity already in the situational analysis *What is happening to our common home*, while assessing this as a weighty dimension to the out-of-balance relationship with creation:

“Each year sees the disappearance of thousands of plant and animal species which we will never know, which our children will never see, because they have been lost for ever. The great majority become extinct for reasons related to human activity. Because of us, thousands of species will no longer give glory to God by their very existence, nor convey their message to us. We have no such right.” (LS 33, op. cit., p. 28).

Particular emphasis is placed on the loss of biodiversity in the Amazon and the Congo Basin, which are the “richly biodiverse lungs of our planet” (*LS* 38), the vanishing of ecosystems formed by mangrove swamps (*LS* 39) and the loss of species in the oceans due to overfishing or water pollution, which is destroying, for example, coral reefs.

“In tropical and subtropical seas, we find coral reefs comparable to the great forests on dry land, for they shelter approximately a million species, including fish, crabs, molluscs, sponges and algae. Many of the world’s coral reefs are already barren or in a state of constant decline. ‘Who turned the wonderworld of the seas into underwater cemeteries bereft of colour and life?’” (*LS* 41, op. cit., pp. 32–33).

With the Amazon Synod, which took place in the Vatican in October 2019, the topic of biodiversity received special world Church attention. The Amazon basin is one of the richest repositories of biodiversity on Earth and, as such, assumes global significance for the sustainability of human civilisation:

“The equilibrium of the planet also depends on the health of the Amazon region. Together with the biome of the Congo and Borneo, it contains a dazzling diversity of woodlands, on which rain cycles, climate balance, and a great variety of living beings also depend. It serves as a great filter of carbon dioxide, which helps avoid the warming of the Earth.”¹²

¹² Pope Francis: Post-Synodal Apostolic Exhortation *Querida Amazonia* to the People of God and to All People of Good Will (2 February 2020), 48: Secretariat of the German Bishops’ Conference (ed.): Apostolic Exhortation of the Holy See No. 222 (Bonn 2020), p. 34. In the following, the

“The Church is part of an international solidarity movement which must support and promote the central role of the Amazonian biome for a balanced climate of the planet. [...] Therefore, together with the peoples of Amazonia, we call on the states to stop considering the Amazon region as an inexhaustible reserve [...]. The states should pursue an investment policy that assesses every intervention according to whether it respects high social and ecological standards as well as the basic principle of protecting the Amazon. To this end, they must include participation of indigenous peoples, other Amazonian communities and the various scientific institutions that have already proposed models for forest use.”¹³

The connection between nature conservation and legal protection of the local indigenous population is given particular emphasis here. It was an important signal when Pope Francis placed a focus on indigenous traditions from Latin America. These play a guiding role in the context of a biodiversity-friendly interaction of people with nature. Interreligious and intercultural dialogue and learning processes, as well as the common struggle for a politically viable transposition of these categories under the conditions of present-day society, are only at the beginning.

The post-synodal letter *Querida Amazonia* (Beloved Amazonia) makes forceful reference to the paradigm of integral ecology as a framework for reflection, emphasising the close connection between man and nature. Appreciation of the diversity and beauty

Apostolic Exhortation is cited using the abbreviation *QA* and the respective paragraph number.

¹³ *Bischofssynode: Sonderversammlung für Amazonien: Amazonien – Neue Wege für die Kirche und eine ganzheitliche Ökologie. Schlussdokument* (26 October 2019), 68–71: *ibid.*, pp. 118–120 (appendix). The original German work has been translated into English here.

of species in the Amazon basin is expressed by citations from creation-theological, but also poetic, texts. Special attention is also paid to ecosystemic factors:

“It is not enough to be concerned about preserving the most visible species in danger of extinction. There is a crucial need to realize that ‘the good functioning of ecosystems also requires fungi, algae, worms, insects, reptiles and an innumerable variety of microorganisms. Some less numerous species, although generally unseen, nonetheless play a critical role in maintaining the equilibrium of a particular place.’” (*QA* 49, op. cit., p. 35).

Church voices from Germany

As early as 1980, the German bishops, in their document *Zukunft der Schöpfung - Zukunft der Menschheit* (*Future of Creation - Future of Humanity*), assigned species protection a pivotal role within the framework of deliberative environmental-ethical reflection, thereby unequivocally censoring actions that are merely utilitarian in nature:

“We are obliged to preserve the basic stock of creation in all its richness. Human beings are certainly dependent on and entitled to live from the resources of this Earth, including plants and animals. In contrast to humans as individual beings, plants and animals do not have an inviolable individual right to life. However, the diversity of species in the plant and animal kingdoms is part of the basic stock of creation that man, as master and creator of this world, has to protect. This is not merely a matter of protecting individual specimens, i. e. something like Noah’s Ark, in which man protects a remnant of creation against a Flood that he himself has organised. No, plant and animal species

need living space in which they can develop. The living should be able to live, not only for the sake of usefulness for human beings, but for the sake of the abundance, for the beauty of creation, simply to live and to be there. Nature is always opulent and abundant by nature. Those who are only interested in its usefulness often enough also violate the principles of usefulness, unintentionally and unknowingly.”¹⁴

This approach is carried on and further refined in a 1985 ecumenical document published in league with the Council of the Evangelical Church in Germany (EKD), *Verantwortung wahrnehmen für die Schöpfung*. Under the caption “Reverence for Life” (Nos. 34 and 35), two sections are devoted to biodiversity. Life is described here as “something sacred”:

“Not only human life, but also animal and plant life as well as inanimate nature deserve appreciation, respect and protection. Reverence for life presupposes that life is a value and that it is therefore a moral task to preserve this value. Life is given to man; it is his task to respect and preserve this life. It is his responsibility to care for his environment. This requires consideration, self-limitation and self-control. The standard ‘reverence for life’ contains a moment of unconditional claim and duty, a shuddering before the consequences of the use of power, which should restrain man from abusing this power for self-destruction. The reverence for man’s destiny, and the shuddering and shrinking before what could become of man and his

¹⁴ Secretariat of the German Bishops’ Conference (ed.): *Zukunft der Schöpfung – Zukunft der Menschheit. Erklärung der Deutschen Bischofskonferenz zu Fragen der Umwelt und der Energieversorgung*. Die deutschen Bischöfe Nr. 28 (Bonn 1980), p. 17. The original German work has been translated into English here.

environment, and what is before our eyes as a conceivable possibility for the future, reveals life to us as something ‘sacred’ that is to be respected and protected from violation. Reverence for life also brings about a wariness when it comes to pure utilitarian use, an attitude of respect and conservation. Seen in this way, it includes a ‘reverence for what is given’, it awakens a sense of values and an understanding of harm. This reverence also imparts insight into given limits, insight into the finiteness and transmissibility, and above all insight into the vulnerability of creation and fellow creatures.”¹⁵

At the 9th Conference of the Parties to the Convention on Biological Diversity held in Bonn in 2008, the Churches issued a plea for the preservation of our natural heritage as a prerequisite for the future development of all life on Earth as a moral and political duty:

“For Christians, the protection and preservation of biodiversity is the expression of a responsible approach to the creation entrusted to all human beings by God. This is the Christian motivation for preserving the natural heritage. The future development of all life on Earth depends not least on the protection of the biosphere.”¹⁶

¹⁵ Church Office of the Evangelical Church in Germany, Secretariat of the German Bishops’ Conference (eds.): *Verantwortung wahrnehmen für die Schöpfung*. Joint Declaration of the Council of the Evangelical Church in Germany and the German Bishops’ Conference, 34–35: Arbeitshilfen Nr. 40 (Cologne 1985), p. 28. The original German work has been translated into English here.

¹⁶ German Bishops’ Conference: *Deutsche Bischofskonferenz unterstützt den Schutz der biologischen Vielfalt*. Pressemitteilung der Kommission für gesellschaftliche und soziale Fragen der Deutschen Bischofskonferenz zur 9. Vertragsstaatenkonferenz des Übereinkommens über die biologische Vielfalt vom 19.–30. Mai 2008 in Bonn; <https://dbk.de/de/nc/presse/>

Without claiming to be exhaustive, other opinions are mentioned whose significance is primarily related to the fact that they place the issue of biodiversity in the contexts of agriculture, soil protection and animal welfare. For example, the ecumenical report *Neuorientierung für eine nachhaltige Landwirtschaft* (2003)¹⁷ postulates that this should not be the focus of agriculture,

“It is not about producing as much as possible, but about providing a healthy diet and at the same time preserving diverse habitats for people, animals and plants. It is a basic element of human culture and an expression of a contemporary responsibility for creation. [...] Christian commitment to this is a testimony to faith in creation” (No. 120, op. cit., p. 50).

The way that farm animals are handled is subjected to harsh criticism, with systemic causes being identified: “The entire agricultural livestock sector is subject to extreme economic pressure encouraging exploitation, which has already been globalised. These problematic methods are part of intensive use of animals in which individual animals are viewed from the point of view of achieving maximum growth in an ever shorter period of time.” (No. 25, op. cit., p. 23). This is then contrasted with the Christian view of animals and plants as fellow creatures:

“For Christians, the world with its animals and plants is more than a store of raw materials, more than a material for human purposes. In its dynamics and diversity, it is God’s

[aktuelles/meldung/deutsche-bischofskonferenz-unterstuetzt-den-schutz-der-biologischen-vielfalt/detail/](#). The original German work has been translated into English here.

¹⁷ Kirchenamt der Evangelischen Kirche in Deutschland, Secretariat of the German Bishops’ Conference (ed.): *Neuorientierung für eine nachhaltige Landwirtschaft*. Gemeinsame Texte Nr. 18 (Hannover/Bonn 2003). The original German work has been translated into English here.

creation and the place of His presence, which always becomes visible when human beings encounter their fellow human beings and creatures with respect and love. This fundamental perspective of Christian responsibility for creation must not be lost sight of in the agricultural treatment of animals.” (No. 52, op. cit., p. 32).

The report *Der bedrohte Boden* (2016) reminds us that soil is the site and guarantor of the greatest richness in species, and in this respect one must assume a close interrelationship between soil protection and protection of biodiversity. This is held to be a question of justice between generations and is also viewed as a self-obligation in the Church’s handling of its considerable areas of land property.¹⁸

So far, the Catholic bishops in Germany have not engaged in any monographic discussion of animal ethics. Particularly in view of the great intensity of the debate on animal ethics in society and the Churches¹⁹, it is high time this topic be assigned more weight, as is done in this publication. Animal ethics is a sub-area of the biodiversity debate. It can also be seen as a field of ethics with its own particular problems, however, which is particularly

¹⁸ C.f.: Secretariat of the German Bishops’ Conference (ed.): *Der bedrohte Boden. Ein Expertentext aus sozialetischer Perspektive zum Schutz des Bodens*. Die deutschen Bischöfe – Kommission für gesellschaftliche und soziale Fragen Nr. 44 (Bonn 2016), pp. 6 and 35 f.

¹⁹ C.f. for example: Nicole Podlinski, Ulrich Oskamp: *Ethik der Nutztierhaltung. Nicht alles, was möglich ist, ist auch erstrebenswert*. Kirche und Gesellschaft Grüne Reihe Nr. 431, put out by Katholischen Sozialwissenschaftliche Zentralstelle (Mönchengladbach 2016); and: Franz-Theo Gottwald: *Geschöpfe wie wir – Zur Verantwortung des Menschen für die Nutztiere – Kirchliche Positionen* (München 2004), zu kirchlichen Verlautbarungen bes. S. 29–63. Zur Reflexion der „Theologie nach dem ‚animal turn‘“ c. f. Themenheft der Münchener Theologischen Zeitschrift (MThZ) 4/2019 bearing this title.

virulent from a theological perspective, not least because anthropological questions about the special position of humans are also addressed in it. The framing of the discourse on animal ethics through the context of biodiversity facilitates a broadening of the view, which is often too narrowly focused on individual animals due to the dominance of approaches that are geared towards avoiding suffering, thereby resulting in a neglect of ecosystemic dimensions.

The impulse paper issued by the Protestant Church in Germany „*Geliehen ist der Stern, auf dem wir leben.*“ *Die Agenda 2030 als Herausforderung für die Kirchen*²⁰ intensively explores questions of biodiversity, in particular examining the responsibility of agriculture and policy in the field of agriculture as well as that of consumers in how they deal with foodstuffs. The study assumes that a comprehensive change in values, mentality and culture is necessary to achieve the goals of Agenda 2030. Another impulse paper by the Protestant Church in Germany, *Nutztier und Mitgeschöpf! Tierwohl, Ernährungsethik und Nachhaltigkeit aus evangelischer Sicht*²¹, calls for a deeper theological reflection on the human-animal relationship in order to adequately take into account the wealth of new scientific findings regarding the intellectual and social abilities of animals and to take a closer look than in the past at conflicting aims and objectives in the field of livestock farming. Excessively high and rapidly growing meat consumption worldwide is one of the key causal factors in the

²⁰ Protestant Church in Germany (ed.): „*Geliehen ist der Stern, auf dem wir leben*“ – *Die Agenda 2030 als Herausforderung für die Kirchen. Ein Impulspapier der Kammer der EKD für nachhaltige Entwicklung*. EKD-Texte 130 (Hannover 2018).

²¹ Protestant Church in Germany (ed.): *Nutztier und Mitgeschöpf! Tierwohl, Ernährungsethik und Nachhaltigkeit aus evangelischer Sicht. Ein Impulspapier der Kammer der EKD für nachhaltige Entwicklung*. EKD-Texte 133 (Hannover 2019).

continuing overexploitation of arable land and grassland. However, the issue by no means only revolves around pragmatic questions of agriculture. The question of “what is an animal” also throws back to the question “what is a human being?”

It would go beyond the scope of this report to mention or even acknowledge the numerous ecclesiastical and theological writings on biodiversity and animal ethics. Only a few examples are mentioned here in order to illustrate some of the basic theological and ethical patterns of argumentation upon which this report is based. It should not be forgotten that in other religions, for example in Judaism, a differentiated discussion of biodiversity issues already took place early on. In it, the protection of biodiversity is seen as an expression of the perception of God’s presence in His creation and as a prerequisite for the survival of humankind.²²

²² David Rosen: *Protecting Biodiversity: A Covenant With Every Living Thing*; <https://www.myjewishlearning.com/article/protecting-biodiversity-a-covenant-with-every-living-thing>.

2. Seeing: The sixth Great Species Extinction

2.1 Empirical findings on species extinction

The scientifically and environmentally established term that sums up the different aspects of species conservation is “biodiversity”. As already outlined in the introduction, this refers to both the diversity of species and diversity within species, i. e. in addition to species diversity, it also encompasses genetic diversity and the diversity of ecosystems. This is for the most part catalogued and estimated by using indicators. Bird species are particularly well studied. Birds perform important functions in ecosystems, for example as seed-dispersers and biological pest-controllers, but are conversely also dependent on insects and plants, so they are important indicators of the condition of the latter. The decline in species of birds is particularly significant in agricultural landscapes. The deforestation of tropical forests, the overfishing of the oceans and overexploitation of savannahs are also highly problematic trends with far-reaching consequences for the development of life on our planet.

The negative trend identified in the above-mentioned report by the World Biodiversity Council (IPBES) has not been halted despite considerable conservation efforts and is even accelerating in some cases. At the same time, there are considerable uncertainties: The total number of biological species on Earth is unknown. Their number is estimated at 10 to 100 million.²³ Comprehensive data on their global endangerment have only been

²³ Biologists work with far more than twenty different definitions of the term species; for this reason alone, there is no consensus on a precise way to determine the diversity of species on Earth. The number of eukaryotes

available since the mid-1990s.²⁴ In the case of insects in particular, this has thus far only been scientifically recorded for a small proportion (less than one per thousand), which means that overall statements about their degree of endangerment are based on hypothetical extrapolations and are largely derived from data on the destruction of habitats as well as employment of analogies. In the case of fish, too, their endangerment has only been investigated in more detail for a small proportion of species (approx. 6 %). For birds and mammals, on the other hand, scientific assessments of their endangerment are available for most of the species described. There is a considerable need for research to venture comprehensive statements regarding the degree of endangerment of species, however.

Despite the increase in protected areas and successful efforts to protect some particularly rare species, biodiversity continues to decline at a rapid pace. Even though the exact figures are constantly changing due to recent research and are partly based on hypothetical projections, it is undeniable that the current decline in biodiversity is not a phenomenon involving “normal” evolution, in which the majority of species become extinct again in the course of development, but rather a radical, man-made break in the evolution of life. It represents the beginning of the sixth Great

is estimated to be between 9 and 100 million, cf. *Christlicher Glaube und die Große Transformation zu mehr Nachhaltigkeit*, in: Brigitte Bertelmann, Klaus Heidel (ed.): *Leben im Anthropozän. Christliche Perspektiven für eine Kultur der Nachhaltigkeit* (Munich 2018), pp. 53–64, p. 56. On the topic of species extinction, cf. also Markus Vogt: *Christliche Umweltethik. Grundlagen und zentrale Herausforderungen* (Freiburg 2021), p. 87 ff.

²⁴ The most important tool for determining the degree of endangerment of species and the priorities for protection are the *Red Data Books of the International Union for Conservation of Nature (IUCN)*. Cf. on the various data collections and conservation measures: <https://www.iucn.org/resources/conservation-tools/iucn-red-list-threatened-species>.

Mass Extinction in the history of the Earth. Earlier mass extinctions, which were caused by tectonic shifts, volcanic eruptions and asteroid impacts, occurred many millions of years ago.

The decisive cause underlying the anthropogenic extinction of species is the destruction of habitats. Areas exhibiting great and at the same time threatened biodiversity are of particular importance and are therefore referred to as *hot spots*. So far, only about one-third of these are under nature conservation. Since up to 90 % of species living on land are native to tropical rainforests and these have been deforested at a high rate for years (approx. 6 million hectares per year), species protection today is essentially tantamount to the question of how to deal with tropical forests.

In 2018, insect extinction received a high level of media attention. The decrease in insect biomass since 1989 is estimated at 76 % in the “Krefeld Study”.²⁵ This extinction is a large-scale phenomenon with far-reaching effects on flora and fauna. 80 % of wild plants are pollinated by insects and therefore cannot reproduce without them. For 60 % of bird species, insects are the most important food source. The “Krefeld Study” is one of the first long-term studies that has been conducted in this field. There is still a great need for further research, however, especially on the causes. The results of the study are important indicators of the worrying state of biodiversity in Germany and worldwide. However, the decline in biodiversity should not be equated with “extinction of species”: It is estimated that 10 % of insect species

²⁵ See Caspar Hallmann et al: *More than 75 percent decline over 27 years in total flying insect biomass in protected areas*, in: *PLOS ONE* 12(10) (2017); <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0185809>. The study is based on data collected from 1989 to 2015 at a total of 63 different sites in North Rhine-Westphalia, Brandenburg and Rhineland-Palatinate. Traps were set up in which millions of flies and butterflies, beetles, wasps, bees and other flying insects were caught over these years. These were then weighed by the researchers.

are threatened with extinction.²⁶ Nevertheless, the decline in biomass can hardly be overestimated when it comes to ensuring the proper functioning of ecosystems as well as for agriculture as a whole. In China, for example, attempts have been made for some years to compensate for the decline in bee populations through artificial pollination of fruit trees.

The decisive problem in the context of species extinction is the ongoing destruction of habitats, especially the clearing of rainforests to use as agricultural land. The massive use of pesticides also seriously reduces biodiversity. In 2018, the German National Academy of Sciences Leopoldina published its 70-page discussion paper entitled *Der stumme Frühling*, underscoring the pressing need for environmentally compatible plant protection.²⁷ Similarly, in 2020 Leopoldina issued a wide-ranging statement on the biodiversity crisis which comprehensively outlined the problem of biodiversity loss yet again, while issuing an urgent call on policymakers to take action.²⁸ Finally, Leopoldina has

²⁶ Helmholtz Centre for Environmental Research (ed.): *Das „Globale Assessment“ des Weltbiodiversitätsrates IPBES. Die umfassendste Beschreibung des Zustands unserer Ökosysteme und ihrer Artenvielfalt seit 2005 – Chancen für die Zukunft* (Leipzig 2019), p. 9. As a large proportion of insect species are not scientifically classified, the projections on this are characterised by some uncertainties.

²⁷ Andreas Schäffer et al: *Der stumme Frühling – Zur Notwendigkeit eines umweltverträglichen Pflanzenschutzes*. Discussion No. 16. National Academy of Sciences Leopoldina (Halle/Saale 2018). The title echoes the book of the same name by Rachel Carson, which served as a “wake-up call” for the environmental movement in 1962.

²⁸ National Academy of Sciences Leopoldina (ed.): *Globale Biodiversität in der Krise – Was können Deutschland und die EU dagegen tun?* Discussion No. 24 (Halle/Saale 2020).

devoted a third study to this topic, focusing in particular on the promotion of biodiversity in the agricultural landscape.²⁹

The main causes of species extinction in the marine environment are overfishing and climate change. If the negative trend continues unabated, the populations of almost all currently fished species will collapse by the middle of the 21st century.³⁰ Climate change is leading to acidification of oceans, which is in turn causing coral reefs to die, thereby impeding or preventing calcification build-up by crustaceans. Nor do plans for extensive resource extraction on the seabed using remote-controlled robots bode well for the protection of biodiversity. “Existing marine governance has failed in several areas, not only because the arrangements agreed between governments are insufficient, but also because there is a lack of consistency in the implementation

²⁹ National Academy of Sciences Leopoldina, acatech – Deutsche Akademie der Technikwissenschaften, Union der deutschen Akademien der Wissenschaften (eds.): *Biodiversität und Management von Agrarlandschaften – Umfassendes Handeln ist jetzt wichtig* (Halle/Saale 2020).

³⁰ Cf. Oliver Putz: *Herausforderungen im Anthropozän. Christlicher Glaube und die Große Transformation zu mehr Nachhaltigkeit*, in: Brigitte Bertelmann, Klaus Heidel (ed.): *Leben im Anthropozän. Christliche Perspektiven für eine Kultur der Nachhaltigkeit* (Munich 2018), pp. 53–64, p. 57. According to the United Nations World Food Programme (FAO), in 2013 already one-third of fish stocks were overfished, while another 60 % were being fished to the maximum limit, cf. Wissenschaftliche Arbeitsgruppe für weltkirchliche Aufgaben der Deutschen Bischofskonferenz (ed.): *Raus aus der Wachstumsgesellschaft? Eine sozialetische Analyse und Bewertung von Postwachstumsstrategien*. Studien der Sachverständigengruppe „Weltwirtschaft und Sozialethik“ Bd. 21 (Bonn 2018), p. 18.

of these regulations and because misconduct is rarely counter-acted by sanctions.”³¹

2.2 Systemic effects of species decline for humans and the biosphere

The loss of biodiversity impacts climate change. Conversely, climate change also influences biodiversity and is considered one of the main causes of biodiversity loss. Often, identical factors impact biodiversity and climate. Take forests, for example: a large part of biodiversity loss is caused by changes in land use. The loss of forests, especially tropical forests, not least through their conversion to agricultural land, has led to a decline in the habitats of numerous animal and plant species. The Leopoldina study on the biodiversity crisis notes that the global forest area, which hosts 50-90 % of all terrestrial forms of organisms, has been reduced by 40 % through deforestation. Another 40 % has been degraded by logging, fires and the decimation or extinction of large mammal and bird species to such an extent that forest populations are now found only in an impoverished form. The annual gross loss of particularly species-rich wet tropical forest areas is also considerable: it amounted to 49,000 km² in each of the years 2000-2012 – more than the territory of Lower Saxony – and is proceeding apace.³²

The repercussions for humanity are severe. The world’s forests store significant amounts of greenhouse gases, which are

³¹ Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen (ed.): *Welt im Wandel: Menschheitserbe Meer* (Berlin 2013), p. 2. The original German work has been translated into English here.

³² National Academy of Sciences Leopoldina (ed.): *Globale Biodiversität in der Krise – Was können Deutschland und die EU dagegen tun?* Discussion No. 24 (Halle/Saale 2020), p. 7.

released by deforestation to open up agricultural land. In sum total, almost a quarter of the world's CO₂ emissions can be attributed to forestry and changes in land use.³³ On top of this, there are other important functions and services of biodiversity for humans. To illustrate this, take the example of the Amazon: "The Amazon is not only the largest reservoir of biodiversity in the world, it is also its pharmacy [...]. If this ecosystem collapses, then there will also be a serious upsurge in the greenhouse effect. Due to feedback loops, this increase will be dramatic."³⁴

Changes in land use, especially through the expansion and in terms of the intensity of agricultural production, play a central role in both the biodiversity crisis and climate change. If these changes are not brought to a halt, important functions and services performed by nature for humans cannot be maintained worldwide in the future.

When it comes to the systemic effects of species loss on other ecosystem services and humans, however, it must be said that many of these are not known in detail. The *tipping points* at which ecosystems become critical, i. e. they may no longer return to their former state, are at present receiving considerable attention in the scientific debate. These tipping points are often surrounded by considerable uncertainties, however, and it is difficult to use them to guide action. But since they are potentially associated with very major consequences for ecosystems and the people who use them, it is a precautionary imperative to address the drivers of biodiversity loss early on and with vigour if we are

³³ IPCC (ed.): *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (Geneva 2014), p. 3.

³⁴ Ottmar Edenhofer: *Das Klima und die Kirche*, in: *zur Debatte – Themen der Katholischen Akademie in Bayern* 1 (2020), pp. 1–5, p. 3. The original German work has been translated into English here.

to have at least some chance of avoiding such tipping points being reached. Thus we find, after a decade in which the biodiversity goals adopted by the United Nations in 2010 (“Aichi Targets”) failed to be achieved by 2020, a trend towards spelling out the specifics in the discussion on reducing the drivers of biodiversity loss as well as global and regional biodiversity targets. This also has a direct impact on the negotiations to establish a new global framework for biodiversity after 2020, in particular with regard to the 2030 and 2050 targets. In the climate as well as in the biodiversity field, however, we are at present still far from adopting a path that would allow us to avoid exceeding the tipping points.

2.3 Causes and drivers of biodiversity loss

To increase policy relevance, the authors of the IPBES report have identified five direct drivers of change in nature that have had the greatest relative global impact to date. These are, in descending order of importance: changes in land and sea use, direct exploitation of organisms, climate change, pollution and invasive alien species.

For years, data on Earth system research based on the Planetary Boundaries Concept³⁵ has been pointing to the most prominent “red lights” in the agricultural sector: Heavy use of fertilisers and pesticides pollutes the water balance and soils, animal feed and biofuel production is the driving factor in the clearing of the rainforests, which are indispensable as the “green heart of the planet”, while change in land use is destroying the habitats of wild animals and, as a major driver, is currently leading to the sixth

³⁵ Johan Rockström et al: *A safe operating space for humanity*, in: *Nature* 461 (2009), pp. 472–475; Will Steffen et al: *Planetary boundaries. Guiding human development on a changing planet*, in: *Science* 347 (2015), 1259855.

major species extinction in the history of the evolution of life: Far beyond the pale of our perception, a mass extinction of animal species is taking place.

In this context, the Leopoldina study on the biodiversity crisis has underscored the serious environmental effects of excessive meat consumption. If the consumption of animal products (meat, milk, other animal products) – especially cattle – remains at a high level in developed countries while the consumption of animal products increases in developing countries, it will not be possible to get a grip on most important environmental burdens facing the world. In addition to the loss of biodiversity, these include climate change as well as threats to the soil and water pollution. Against this backdrop, the authors of the study call for cutting meat consumption by 50 % in the world's highly developed countries and a change in methods of agricultural production. The various forms of ecologically compatible agriculture are of particular importance here. In this context, it is not necessarily a matter of avoiding all animal consumption, because organic farming also needs animals in the chain of production to close its material cycles. Cattle and sheep that eat grass also have an important and positive function for biodiversity in many parts of the world, as the areas they graze on are home to unique flora and fauna, and pastures can store large amounts of climate gases.³⁶ However, meat consumption must be “moderated”, i. e. unnecessary consumption habits that are harmful to the environment and to health must be cut back.

The driving force behind the loss of biodiversity is above all the ongoing and growing use of habitats by humans. This affects not only land areas used (especially through the deforestation of rainforests and massive use of pesticides in agriculture), but also

³⁶ Anita Idel: *Die Kuh ist kein Klima-Killer! Wie die Agrarindustrie die Erde verwüstet und was wir dagegen tun können* (Marburg 2014).

the atmosphere, which is used as a free “dumping ground” for excess carbon dioxide, and the oceans: continuously mounting pollution of the oceans together with overfishing is leading to a significant decline in fish populations and species. The focus of public perception on the decline of some cetacean species and coral reefs constitutes an overreduction of the problem. Since all these driving factors have continued unabated since the tenth century and are even gaining in intensity in some cases, a reversal of the trend is not to be expected any time soon.

The IPBES report states that despite some progress in conservation and policy implementation, sustainability cannot be achieved on the current trajectory. It is only possible for targets for 2030 and beyond to be achieved through far-reaching transformative changes in economic, social, political and technological factors. As progress has been made on only four of the twenty Aichi Biodiversity Targets, it is likely that most will be fallen short of. Current negative trends in biodiversity and ecosystem development will affect progress towards achievement of 80 % (35 out of 44) of the Sustainable Development Goals (on poverty, hunger, health, water, cities, climate, oceans and land). Biodiversity loss is therefore proving to be not only an environmental issue, but also a developmental, economic, security, social and moral problem. “To better understand the root causes of damage to biodiversity and nature’s contributions to human well-being, and especially to address these, we need to understand the history and global context of complex indirect demographic and economic drivers of change, as well as the social values that underpin them,” is how Eduardo Brondizio put it upon the presentation of the IPBES report.

“Key indirect drivers include increased population and per capita consumption; technological innovation, which in some cases has lowered and in other cases increased the damage to nature; and, critically, issues of governance and

accountability. A pattern that emerges is one of global interconnectivity and ‘telecoupling’ – with resource extraction and production often occurring in one part of the world to satisfy the needs of distant consumers in other regions.”³⁷

The papal encyclical *Laudato si’* also takes a look at these trends, pointing to the indirect drivers of this unprecedented loss of species:

“The Earth’s resources are also being plundered because of short-sighted approaches to the economy, commerce and production. [...] Often a vicious circle results, as human intervention to resolve a problem further aggravates the situation. For example, many birds and insects which disappear due to synthetic agrottoxins are helpful for agriculture: their disappearance will have to be compensated for by yet other techniques which may prove harmful. [...] We seem to think that we can substitute an irreplaceable and irretrievable beauty with something we have created ourselves” (*LS* 32–34, op. cit., pp. 28–29).

The ominous combination of population growth, mounting demands for prosperity, a ruthless pursuit of profit and expansive technology is a decisive cause of the continuing loss of biodiversity. This analysis clearly shows that this is a challenge facing society as a whole, which can only be effectively dealt with through new forms of dialogue between different expert perspectives and actors. The following section explores such a dialogue with the aim of elaborating criteria for making assessments.

³⁷ <https://ipbes.net/news/Media-Release-Global-Assessment/>.

3. Assessments:

The importance of biodiversity from the perspective of biology, economics, philosophy and theology

3.1 The ecosystem services approach

The term ecosystem services has become established and accepted especially in the wake of the Millennium Ecosystem Assessment, a large-scale United Nations study on the condition and trends of ecosystems conducted over the period 2001 to 2005. This draws attention to the fact that the loss of biodiversity is not only a problem relating to failure to adequately protect nature and its diversity per se, but that human health, quality of life and prosperity are also at risk – because the loss of biodiversity also leads to the degradation or even complete loss of nature’s ecosystem services for humans.

Nature and associated ecosystem services form the basis for human well-being and are even vital to it in many areas. These provide the basis for foodstuff staples as well as for the manufacture of products in sectors as diverse as high technology, health and recreation. Thus ecosystem services are also of considerable significance for society. The prerequisites for these are the basic services that make it possible for ecosystems to function properly in the first place. With this in mind, a distinction can be made between provisioning services, regulating services and cultural services. Habitats or communities of species are the direct or indirect prerequisite for individual ecosystem services. However, these preconditions are increasingly at risk due to land use and environmental degradation.

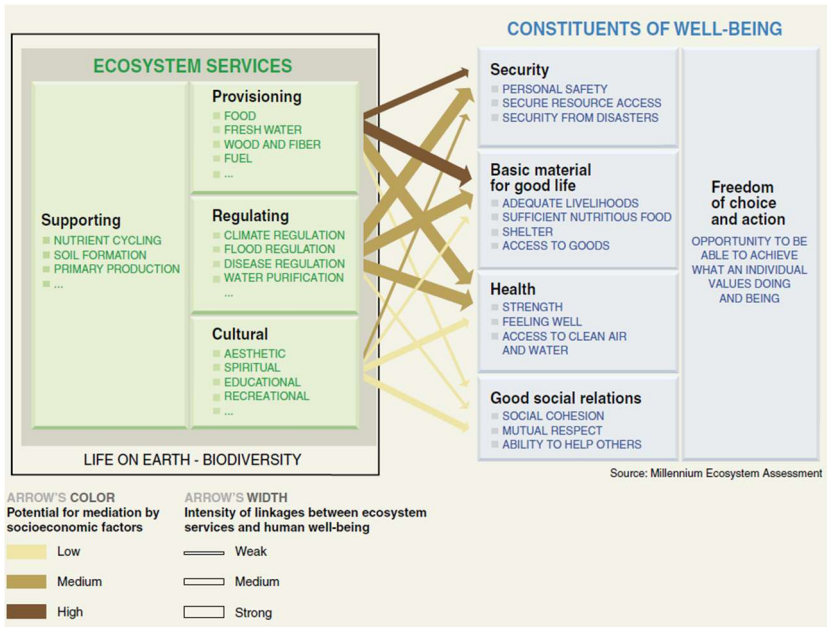


Fig. 1: The Millennium Ecosystem Assessment (MA 2005) has developed a concept for classifying global ecosystem services and their importance for human well-being. In this method, ecosystem services constitute the basis for security, satisfaction of basic material needs, health, social interaction and freedom of action.³⁸

This is particularly obvious in the case of services involving the satisfaction of basic needs. Nature provides people with food, wood, drinking water, fibres and other raw materials. Over the long term, loss of biodiversity poses a threat to the supply of agricultural goods in particular. Not only are soils being lost on a global scale. Soil degradation and the associated loss of soil biodiversity are also threatening to deplete soils and reduce their

³⁸ Millennium Ecosystem Assessment – MA: *Ecosystems and Human Well-being – Synthesis* (Washington, DC 2005).

fertility in many parts of the world.³⁹ Humans are depriving themselves of soil because the conditions for humus-rich and fertile soil are being degraded. In the context of the supply of agricultural goods, the particular salience of the waning supply of pollinators has already been noted. In various parts of the world, loss of insects is causing considerable harvest losses or even complete crop failures for plants dependent on pollination. Economic studies estimate macro-economic losses at up to more than EUR 500 million.⁴⁰ Fish stocks and marine biodiversity are also affected: Coral reefs, for example, provide the nurseries for fish stocks. Although they make up only about 1 % of the ocean surface, they contribute to about 25 % of the marine biomass.

A decline in biodiversity also leads to a loss of regulatory services. The ability of the soil to provide humus declines when biodiversity in the soil decreases and microorganisms disappear. At the same time, the capacity of soil to store climate-relevant greenhouse gases declines. There is also much evidence suggesting that a biodiversity-rich mixed forest is better equipped to cope with climate change and extreme events than a monoculture spruce forest.

With regard to cultural services, according to the IPBES report, there is a significant correlation between threats to cultural and biological diversity worldwide. Many indigenous peoples see their ecosystems as part of creation, for example as “Mother Earth”, which must not be exploited and which is formative in

³⁹ Secretariat of the German Bishops’ Conference (ed.): *Der bedrohte Boden. Ein Expertentext aus sozialer Perspektive zum Schutz des Bodens*: op. cit., p. 12.

⁴⁰ For a summary of the studies, cf. Bernd Hansjürgens, Christoph Schröter-Schlaack, Josef Settele: *Zur ökonomischen Bedeutung der Insekten und ihrer Ökosystemleistungen*, in: *Natur und Landschaft* 94, Heft 6/7 (2019), pp. 230–234.

terms of their existence and their social and societal structures. This suggests that there are more fundamental interrelationships at stake here, without which species conservation programmes will remain at the level of treating symptoms.

However, the most important, albeit most difficult to grasp because our knowledge gaps are still greatest here, are the basic services provided through biodiversity. Biodiversity processes control the functions of nature, which in turn form the basis for the essential services of nature for humans. We know that ultimately a great deal depends on these processes, but exactly how this happens, where the tipping points after which certain functions can no longer be fulfilled are to be found, to what extent these tipping points can be diagnosed, to what extent exceeding them can possibly be reversed, and what further-reaching consequences they have for other ecosystem services within and outside the ecosystem concerned – this is all fraught with uncertainties that point to a need for further research.

3.2 The economic valuation of biodiversity – a functional assessment approach

In viewing nature as the underpinning for ecosystem services, an anthropocentric perspective is posited. This encompasses services provided by nature for humans, for their health, their well-being, for social cohesion, etc. Seen from this perspective, the relationship to nature is an instrumental means-to-a-purpose relationship: what constitutes useful is what is of use to people. This leads to an economic view of nature. In recent years, this view has played a considerable role in the political and societal discussion about biodiversity. Building on the TEEB study “The Economics of Ecosystems and Biodiversity”, political and social discussions

have focused on economic patterns of argumentation. The objective has been to open up what was previously a nature conservation-related discourse to wider audiences. The intention has been to make it clear to decision-makers who are not otherwise very concerned with the protection of biodiversity that what is at stake here is social prosperity, quality of life and, ultimately, the very foundations of human life. Follow-up studies ensued, such as the project “Natural Capital Germany – TEEB DE” (2012–2018) carried out in Germany.⁴¹

The economic approach is often criticised for being narrowly focused on utilitarian views of nature and economic aspects. It should be noted, however, that this approach is broader than many people think. The benefits of biodiversity can at the same time be direct – e. g. through food or enjoyment of the beauty and diversity of a biodiversity-rich landscape – or, however, indirect, with nature’s services being mediated through regulatory or cultural services. It is not only direct and indirect use-dependent values of biodiversity that are recorded as benefits, however, but also values independent of use, such as altruistic, legacy-related, option-related or existence-related values. Altruistic values mean that others benefit (humans derive a benefit because they are pleased that other human beings are doing well). Legacy values denote the benefit when one’s own children and descendants inherit an intact environment and strong and vigorous realm of nature. Option-related values refer solely to the possibility (the option) of using biodiversity in the future (e. g. buying up tropical rainforest to secure access to genetic resources). Finally, existence-related values designate knowledge of the existence of a species alone – people are willing to protect a rare species and devote their monetary resources to it, even though they will

⁴¹ Cf. Naturkapital Deutschland – TEEB DE (2018): *Werte der Natur aufzeigen und in Entscheidungen integrieren – eine Synthese* (Leipzig).

probably never see this species. The economic approach is thus concerned with finding out whether people have preferences for biodiversity and are willing to commit something to preserve it, i. e. whether they are willing to pay for it.

In deliberations of the World Biodiversity Council IPBES, the values of biodiversity have been discussed in detail. The authors have come to the conclusion that they prefer the construct “Nature’s Contributions to People” to the term “Ecosystem Services”.⁴² They held that the concept of ecosystem services was overly westernised and – despite the broad value dimensions that the economic concept of ecosystem services also constitutes – did not sufficiently take into account conditions surrounding indigenous populations in the countries of the Global South. “Nature’s Contributions to People” is intended to capture the entire breadth of human dependence on biodiversity and nature as well as the significance of these contributions to human well-being in a broad sense (see also Fig. 2).

⁴² Ursai Pascual et al: *Valuing nature’s contributions to people: the IPBES approach*, in: *Current Opinion in Environmental Sustainability* 26–27 (2017), pp. 7–16; Sandra Diaz et al: *Assessing nature’s contributions to people*, in: *Science* 359 (2018), pp. 270–272.

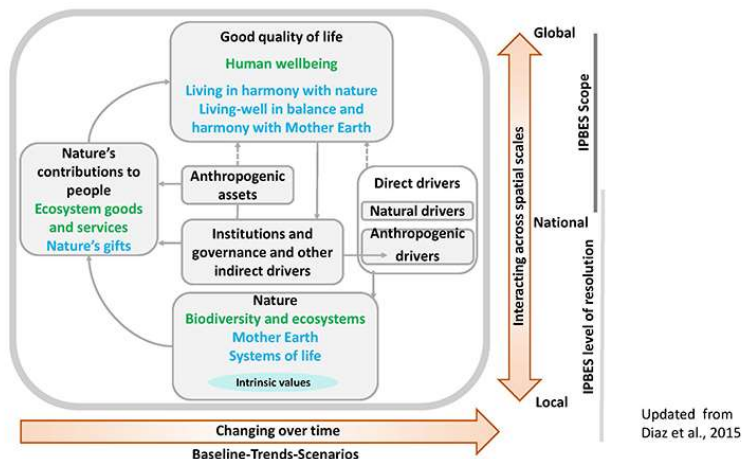


Fig. 2: Nature's contributions to humans from the IPBES perspective: Nature makes wide-ranging contributions to human beings, to their quality of life, their well-being and their living in harmony and in tune with their environment. This diagram brings together different knowledge systems and can help translate between them: Neutral terms are shown in black, terms emanating from (western) science are shown in green and terms taken from the field of indigenous and local knowledge are shown in blue.⁴³

⁴³ IPBES Secretariat (ed.): Conceptual Framework, <https://www.ipbes.net/conceptual-framework>.

3.3 Ethical-philosophical broadening of the perspective in functional approaches

There is a considerable need for clarification regarding the existential importance of biodiversity for ecosystems and for human well-being. Hence, the aforementioned approaches oriented towards ecosystem services along functional lines are also of fundamental importance in ethical terms. These approaches can be classified as utilitarian approaches to species conservation. It should be noted, however, that they primarily apply to productive, directly usable services of nature for humans, while their reproductive potential and indirect services are often not, or are only incompletely, taken into account (e. g. the fact that nature provides humans with a habitat, its identity-forming and aesthetic qualities above and beyond its usability for tourism, or its significance in the context of life, in whose material cycles humans are integrated). All of this is insufficiently perceived, especially from a narrow monetary perspective that only values scarcities and (at least in most cases) usable products on the basis of market data.

Attempts to calculate the ethical value of biodiversity based on utilitarian models are on thin ice due to a profound ignorance of the complex interrelationships involved. The methodological approaches in an ecological-functional, economic-utilitarian or anthropocentric-intergenerational justification for the protection of biodiversity – as described in section 3.2 – go further than many people expect. Nevertheless, in and of themselves, they probably do not provide a sufficient basis for the ethical justification of species conservation.

Functional justification of species protection using the criterion of ecological stability is in need of differentiation in several respects:

- The connection between diversity and stability is not obvious, or at least is not to be understood in a linear way. Moreover, the aim is not necessarily to maintain a certain state of nature, but rather its ability to evolve. New ecosystems are emerging with regard to which it is not clear which process-related, functional and ecosystem properties will characterise them in the future.
- Life, which absorbs energy from the environment through metabolic processes, always struggles against equilibria (entropy), developing dynamically through imbalances. These imbalances drive systems: “Ecological equilibrium” cannot therefore be used as the ultimate standard, but rather only applied in a relational sense as an ethical criterion for ecological conditions in order to maintain certain states in certain contexts.
- A reference point is needed in order to say what stability one wants to maintain and for whom. Nature only has relational target values, e. g. conditional prerequisites that must be fulfilled so that a certain species survives or a certain body of water does not reach the tipping point.

The goals of biodiversity protection can therefore not be ethically described without making reference to the constitutive connection with justice, quality of life and a notion of the intrinsic value of nature that needs to be spelled out in more detail.

The significance of biodiversity for the constancy of natural capital only becomes apparent in its true scope if one conceives of natural capital along dynamic lines, i. e. not as a fixed stock that is to be conserved, but as nature’s potential capacity for development and regeneration. The crucial point is that biodiversity is an indispensable basis for all sustainable development.

This raises fundamental questions:

“Despite a wide range of usage, biological diversity remains a concept strongly linked to the idea of biological variation that is largely unknown in its extent, and its future values. Any ‘calculus’ of biodiversity providing quantitative estimates of this unknown variation automatically provides at the same time a measure of those values that link to the need to maintain variety – option values and intrinsic values. Such values broadly reflect values of elements of biological diversity having unknown present value.”⁴⁴

The value of biodiversity thus has the nature of hypothetical option values to a considerable extent. Despite all the methodological difficulties in estimating them, a weighing of competing values depends on certain forms of quantification. The simplest form of quantification is specification in monetary values (e. g. increase in property values due to aesthetically attractive natural surroundings). However, such monetarisation often depends on highly contingent social factors, so that no plausible information on the value of biodiversity itself can be obtained. Indirect estimates can offer a way out here:

“Decision making (for example, deciding whether we should invest in the conservation of area A or area B) may require only estimates of *relative* gains in represented variation offered by different places (their ‘complementarity values’). Complementarity helps integrate biodiversity

⁴⁴ Daniel P. Faith: *Biodiversity*, in: *Stanford Encyclopedia of Philosophy* (2007), chpt. 6: Conclusion; <https://plato.stanford.edu/archives/win2020/entries/biodiversity/>.

option values with other values attributed to biodiversity, and with values of society more generally.”⁴⁵

Such integrative processes of complementary value assessment depend on the expansion of knowledge about the multifaceted ecological and socio-economic functions of biodiversity. Ultimately, however, they go clearly above and beyond functional perspectives: “The field is rooted in a philosophy of stewardship rather than one of utilitarianism or consumption. The latter has been the basis of traditional resource conservation, that is, conserving resources solely for their economic use and human consumption.”⁴⁶ An ethics of biodiversity requires knowledge-based integration of the multiple value dimensions that directly transcends utilitarian, calculable utility values.

In an ethical evaluation of biodiversity, it is therefore helpful to apply the concept described above (in section 3.2) of a distinction between direct and indirect use-dependent and use-independent values as a point of departure along different dimensions of values. What is left out of this structure, however, are nature’s intrinsic values.

Recognising the intrinsic value of nature is a cultural task and is therefore always related to human beings in a specific way. Sometimes we also refer to relational values in this context.⁴⁷ In

⁴⁵ *Ibid.* Cf. also Committee on Noneconomic and Economic Value of Biodiversity, Board on Biology, Commission on Life Sciences, National Research Council: *Perspectives on Biodiversity. Valuing its Role in an Everchanging World* (Washington 1999).

⁴⁶ Gary K. Meffe, quoted from Daniel P. Faith: *Biodiversity*, in: *Stanford Encyclopedia of Philosophy* (2007), Chpt. 6: Conclusion; <https://plato.stanford.edu/archives/win2020/entries/biodiversity/>.

⁴⁷ See Austin Himes, Barbara Muraca: *Relational Values: The key of pluralistic valuation of ecosystem services*, in: *Current Opinion in Environmental Sustainability* 35 (2018), pp. 1–7.

this respect, recognition of existential values is not necessarily to be equated with a biocentric model of environmental ethics. It contrasts greatly with a “tyrannical anthropocentrism” (*LS* 68 f. and 115–136) that evaluates nature only in terms of its usefulness for humans, however. If one understands the ability to recognise the intrinsic value of nature and to protect it as a dimension of culture, then it follows from this that many indigenous traditions can be categorised as culturally superior in this regard. This was recognised not least at the Amazon Synod:

“In this regard, the indigenous peoples of the Amazon Region express the authentic quality of life as ‘good living’. This involves personal, familial, communal and cosmic harmony, and finds expression in a communitarian approach to existence, the ability to find joy and fulfilment in an austere and simple life, and a responsible care of nature that preserves resources for future generations. The aboriginal peoples give us the example of a joyful sobriety and in this sense ‘they have much to teach us’.” (*QA* 71, op. cit., p. 49).

The Christian approach of responsibility for creation is not essentially about justifying individual imperatives, but about a fundamental revision of the relationship between humans and nature. This makes possible an important broadening of horizons, which often needs to sway prevailing mentalities. Because man did not create nature, he cannot be its owner in an emphatic sense, but should instead regard the Earth with its fruits as common property.⁴⁸ What is necessary, then, is a reversal of perspective: nature is not only there for man, but man is also part of nature, which was there before we were and will outlive us. In Christian

⁴⁸ Cf. Otfried Höffe: *Moral als Preis der Moderne. Ein Versuch über Wissenschaft, Technik und Umwelt* (Frankfurt a. M. 1993), p. 185, with a critical look at traditional ownership theory.

terms, this can be expressed by the category “creation”. According to this view, nature is a given habitat, and not there just to use as we please. This in no way means that it cannot also be shaped. Areas developed and cultivated by mankind, for example, are sometimes particularly rich in species and aesthetically pleasing. However, they can only develop such qualities if they are not treated exclusively with the aim of maximum functionality and resource productivity, but in a culturally evolved harmony of ecological, social and economic developments.

Isolated species protection is insufficiently effective and must be further developed into a systemic protection of habitats, while taking into account complex interactions with social developments and needs. Promising management strategies to this end need to systematically consider both ecosystem and societal interrelationships. This is particularly the case when biodiversity conservation comes into conflict with other societal goals. Such conflicts can arise, for example, in connection with the designation of protected areas. Ethics require clear priorities and analyses of root causes to avoid merely treating the symptoms.

A helpful strategy in this regard is to employ categorical, i. e. non-exchangeable and non-compensable, conservation principles: “It follows from the basic principle of the preservation of human life that all human interventions which endanger the viability of the human species as a whole or of a significant proportion of individuals living today or in the future must be categorically renounced.”⁴⁹ Preservation of the diversity of ecosystems and landscapes as well as of key primary species, i. e.

⁴⁹ Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen: *Welt im Wandel. Umwelt und Ethik*, Sondergutachten (März 1999), p. 38. Translation of original German text.

species that are essential for global cycles, is also included among these categorical principles.⁵⁰

Since the dramatic reduction of biodiversity worldwide is taking place as an accumulation of many small steps that frequently cannot be directly observed, its significance is being massively underestimated. We are biologically ill-equipped to respond to such creeping dangers. This needs to be compensated for through research, awareness-raising and legal protection. Article 20a of the German Basic Law (the German constitution) contains a constitutional mandate to protect the natural foundations of life “also responsibility toward future generations”. Since a major inhibitor of life chances for future generations at present is damage to the natural environment caused by the deterioration of biodiversity, the state’s goal of environmental protection is also being pursued by means of national and international measures promoting the protection of species. The precautionary principle laid down in Art. 20a of the Basic Law must be taken into account by the state (above all by lawmakers) and understood as an imperative to ensure we do not come closer to tipping points in the ecosystem.⁵¹ In addition, the state’s mandate to protect the population emanating from Article 20a in conjunction with Article 1 (1) and Article 2 (2) of the Basic Law could be condensed into a fundamental right on the part of every citizen to guaranteed minimum conditions for human survival, the ecological subsistence

⁵⁰ Cf. *ibid.*, p. 40 f.

⁵¹ Cf. Christian Callies: *Abstand halten: Rechtspflichten der Klimaschutzpolitik aus planetaren Grenzen*, in: *Zeitschrift für Umweltrecht* 7–8 (2019), p. 385 f.; cf. on this also Berlin Administrative Court, judgment handed down on 31 October 2019, 10 K 412.18, which, however, grants the legislature a wide latitude for assessment, evaluation and structuring in meeting this duty to protect, makes prohibition of insufficient measures a yardstick and requires an “evident” violation of the duty to protect the population.

level, and under certain circumstances each individual could also take legal action to satisfy this right. Intergenerational justice cannot be conceived today without programmes to intensively protect biodiversity. To implement these, participatory and multi-criteria decision-making tools are needed that are institutionally embedded, provided with economic incentives and legally binding. The Basic Law, as just described, already contains points of departure for greater consideration being afforded to protection of biodiversity and the climate in the context of governmental, in particular legislative, activities. So far, however, only meagre use has been made of these opportunities. A debate on whether climate protection as well as the preservation and strengthening of biodiversity should be particularly emphasised as separate constitutional interests in the context of Article 20a of the Basic Law – for example, by amending it with a second paragraph – would therefore be welcome. Such an emphasis is legitimised by the need to make sure we do not come closer to planetary and ecological systemic tipping points, as passing these thresholds could constitute a violation of the right to a minimum ecological existence, which also derives from human dignity, and could call into question the very foundations of the state and society.

3.4 Theological approaches: Animals and plants as fellow creatures⁵²

Animals as fellow creatures: Biblical approaches

Biblical texts express a tremendous nearness to animals and plants, as is taken for granted by nomadic and peasant cultures. Especially at the level of imagery – for example in Psalms or the numerous parables – there are highly complex points of departure for Christian animal and plant ethics. In view of the great historical and cultural distance as well as the difference between poetic language and conceptual reflection, however, these have to be once again rendered accessible for a contemporary form of ethics. The Bible testifies to animals being “fellow creatures” of man, they are creatures of the same Father (cf. *Gen* 1:20–25) and, with the first exceptions in the Noahide covenant, they are not destined to feed man (cf. *Gen* 1:29). Man indeed has dominion over them (cf. *Gen* 1:28), but this includes at the same time a responsibility of man to care for the animals (cf. *Gen* 2:15). The command to name the animals (cf. *Gen* 2:19 f.) on the one hand conveys a recognition of the intrinsic value of animals, but at the same time underscores the clear relationship of dominion or subordination between man and animal. Naming animals is also a cultural mandate. Farm animals are considered to be self-evident members of the household, for whom, for example, obeying the commandment to keep the Sabbath also applies (cf. *Ex* 20:10). In the Noahide Covenant, the animals are named

⁵² Note on the authorship: The following sections were written under the auspices of Prof. Dr. Markus Vogt and essential parts correspond to the discussion contained on pages 446 ff. in Markus Vogt: *Christliche Umweltethik. Grundlagen und zentrale Herausforderungen* (Freiburg 2021), ISBN 978-3-451-39110-1, € 48.00, with the kind permission of Verlag Herder GmbH, Freiburg i. Breisgau.

independently as God's contractual or covenant partners (cf. *Gen* 9:10). In the New Testament, the whole of creation, including the animals, is included in the expectation of an end-time consummation (cf. *Rom* 8:19-21; *Col* 1:15-20; *Eph* 1:3-14; *Mk* 1:13: Jesus lives among the wild beasts, which is to be understood as an expression of the messianic vision of peace).

Animals appear in the Bible not only as companions sharing the fate of man, but also as co-inhabitants of man's habitats, for which protective rights are articulated, and as covenant partners that can even be the addressees of demands for justice and punishments (cf. *Ex* 21:28-32). There are also pronounced borderlines and blind spots in an ethics of biblical animal, which have in part been handed down without reflection to the present day. One example of this is the ignorance of suffering, the sensation of pain and sometimes far-reaching cognitive abilities as well as the ecological significance and intrinsic value of fish: The fact that in the Christian tradition fish consumption is not considered meat consumption is understandable from the perspective of the narrative of creation in the Book of Genesis, which categorically differentiates between land and water creatures, but is not very plausible based on present-day biological knowledge and is inconsistent in terms of animal ethics. With regard to the treatment of fish, animal ethics has a lot of catching up to do:

“For example, we now know that fish are very sensitive to pain and physiologically have the preconditions for subjectively perceiving pain [...]. These scientific and behavioural biological findings are of eminent ethical relevance, for they help determine what it means to behave responsibly

towards these highly developed and highly sensitive animals”.⁵³

With regard to the attitudes that underlie the treatment of animals, it is noticeable in the Christian tradition that there is sometimes a significant difference compared to the anthropocentric theory that has been philosophically and theologically forwarded in a majority of cases in the modern era. For example, Francis of Assisi (1181–1226), revered in the Catholic Church as a saint and patron saint of the environment, formulated respect for animals early on as a necessary consequence of the Christian faith in creation: “All creatures of the Earth feel as we do, all creatures of the Earth strive for happiness as we do, all creatures of the Earth love, suffer and die as we do; therefore they are works of the almighty Creator equal to us.”⁵⁴

The primacy of being over usefulness

At the level of Catholic social teaching as well, far-reaching consequences for the human-animal relationship derive from biblical and spiritual traditions: The Compendium of the Social Doctrine of the Church, for example, particularly stresses the importance of biodiversity.⁵⁵ It takes as its starting point a creation-theological and moderately anthropocentric, or to be more precise: an anthroporelational, which is to say a relational approach to justification (species diversity as a common good of

⁵³ Martin Lintner: *Der Mensch und das liebe Vieh. Ethische Fragen im Umgang mit Tieren* (Innsbruck 2017), p. 27. The original German text has been translated into English here.

⁵⁴ Quoted here from the *Jugendcatechismus der Katholischen Kirche*, published by the Austrian Bishops' Conference (Vienna 2010), No. 57. The original German text has been translated into English here.

⁵⁵ Pontifical Council for Justice and Peace (ed.): *Kompendium der Soziallehre der Kirche* (Freiburg/Basel/Vienna 2006), nos. 466–487.

humankind). “Man’s dominion over inanimate and other living beings granted by the Creator is not absolute. [...] it requires a religious respect for the integrity of creation.”⁵⁶ The dignity of human beings cannot be played off against the intrinsic value of animals because it based on certain biological abilities and characteristics that only belong to humans and not to animals, but is rather realised in the relationship with God, which is always at the same time a mission of responsibility and is never directed against fellow creatures.⁵⁷ Animals not only have a use value, but also an existential value: their meaning is also to be found in their mere existence, their beauty, liveliness and diversity. The ethical status of animals differs both from that of an object and from that of a (moral) person. Although they cannot be the addressees of normative demands, they can certainly be the bearers of moral rights and the object of direct duties that serve their protection and, for example, require the owners of pets, zoo animals or farm animals to care for them in a species-appropriate manner. The encyclical *Laudato si’* forwards the notion of an “intrinsic value” of non-human creatures and the principle of the “primacy of being over that of being useful” as mediating categories (LS 68–69).

Michael Rosenberger, a moral theologian from Linz, places the concept of justice at the heart of his formulation of an ethically appropriate way of dealing with animals. In this context, justice must primarily aim to respect and protect the intrinsic value of animals in an appropriate manner.⁵⁸ The advantage offered by the

⁵⁶ Ecclesia Catholica: *Catechism of the Catholic Church* (Munich 1993), No. 2415.

⁵⁷ Cf. Hans Jürgen Münk: *Die Würde des Menschen und die Würde der Natur. Theologisch-ethische Überlegungen zur Grundkonzeption einer ökologischen Ethik*, in: *Stimmen der Zeit* 215 (1997), pp. 17–29.

⁵⁸ Cf. Michael Rosenberger: *Der Traum vom Frieden zwischen Mensch und Tier. Eine christliche Tierethik* (Munich 2015), pp. 130–143.

notion of justice is that even in the contract-theoretical variant it can tie in with the biblical notion of the covenant, which in the Noahide covenant also includes the animals, and that in contrast to philosophical approaches, which when faced with the problems surrounding justification in action theory in the tradition of Schopenhauer's retreat to a mere morality of compassion, it pushes more clearly for a legal and ethical basis for animal ethics. The disadvantage of the "moral grammar" of the concept of justice is that it is closely linked to elements of subject status, autonomy and participation, which can only be applied to animals by analogy.

From the perspective of creation theology, nature in all its diversity is to be understood as a gift which posits the duty of man to cultivate it and care for it (cf. *Gen* 2:15):

"Humans can and should use this gift. They gain raw materials for their basic needs and benefit from the water and nutrient cycles as well as soil formation. The recreational value of nature is also an important aspect. However, the treatment of creation should not be expressed in an arbitrary manner and certainly not in exploitation. Man is always involved in a relationship. He is related to his fellow world, i. e. his fellow human beings and non-human nature, as well as to God."⁵⁹

⁵⁹ Benjamin Schwarz, Michael Rühs, Thomas Beil: *Artenreiche Landwirtschaft auf Kirchengrund. Chancen gelebter Schöpfungsverantwortung. Eine Handreichung zur Umsetzung von Naturschutzmaßnahmen auf kircheneigenem Land* (Regensburg 2018), p. 6.

Animal ethics: The rediscovery of the world as a fellow creature is still to come

From a biblical perspective, avoidance of suffering or maximisation of pleasure, which is the most widespread theoretical basis for the equal inclusion of animals in morality in utilitarian animal philosophy approaches, is not the final, all-determining standard. It is above all a matter of respecting animals as fellow creatures. In this perspective, the undignified instrumentalisation of animals in automated mass slaughter is far more serious than the pain felt by animals that are slaughtered.⁶⁰ Of course, this by no means excludes avoidance of suffering in the killing of animals, while the treatment of farm and domestic animals is also an indispensable element of Christian animal ethics. However, the concept of “cohabitation”, i. e. the sharing of life realms and a use relationship coupled with responsibility and care, would appear to be theologically more appropriate as a term defining the overall perspective.⁶¹ In the context of such an approach, the objective of protecting biodiversity takes on a special significance. This is also clearly the dominant context in which the encyclical *Laudato si'* takes a stance on animal ethics (cf. *LS* 25, 33–35, 91 f., 123 and 145). Such an animal ethics theologically oriented towards overarching relationships can be developed

⁶⁰ Under the pretext of animal protection, there have historically been anti-Semitic campaigns against slaughter in Germany; this mixture of motives is also virulent in the present. On the theological and ethical evaluation of slaughter, see Beatrice van Saan-Klein, Clemens Dirscherl, Markus Vogt: “... seedtime and harvest ... shall not cease” (*Gen* 8:22). *Ein Praxisbuch zum Mehr-Wert nachhaltiger Landwirtschaft* (Munich 2004), pp. 33–35.

⁶¹ Cf. from a creation-theological-ethical perspective: Christof Hardmeier, Konrad Ott: *Naturethik und biblische Schöpfungserzählung. Ein diskurs-theoretischer und narrativ-hermeneutischer Brückenschlag* (Stuttgart 2015), 125 f., 148, 225 as well as 254 f.

today in dialogue with philosophy, behavioural biology and the environmental sciences as a “critical ethics of responsibility”, articulating ethical criteria for integrated protection of animal diversity and biodiversity.⁶² In addition to this, the term “companionship” is proposed to bring the biblical relationship between humans and animals to the point in ethical terms.⁶³ The advantage of this approach is that it can reflect both individual ethical and systemic aspects.⁶⁴ The anthropomorphic concept of companionship, however, can probably only be applied to higher mammals that are close to humans and with which they can develop intensive relationships.

The sober but self-evident appreciation of animals that has characterised large parts of the Christian tradition has lost its culturally formative power under the conditions of industrial agriculture. The extremely high pressure in the modern era to efficiently produce meat, milk and eggs has led to a profound and undignified alienation in the treatment of farm animals in many areas. In the shadow of expansive global use of habitats and resources, agriculture has also become a driving factor in the diminishment of wildlife. The emotionally charged desire for an elimination of the distance to animals, which finds its expression above all in the keeping of pets, is responsible today for extremely heterogeneous forms of interaction with our fellow creatures. Against this background, animal ethics needs above all more coherence, a sense of proportion and practical relevance.

⁶² Cf. Clemens Wustmans: *Tierethik als Ethik des Artenschutzes. Chancen und Grenzen* (Stuttgart 2015), pp. 59–109.

⁶³ Cf. Carola Otterstedt, Michael Rosenberger (eds.): *Gefährten – Konkurrenten – Verwandte: Die Mensch-Tier-Beziehung im wissenschaftlichen Diskurs* (Göttingen 2009).

⁶⁴ With the concept of the “intrinsic value of creatures”, the encyclical *Laudato si'* also takes this aspect into account (cf. *LS* 68–69).

Christian animal ethics can introduce theological perspectives on creation into the debate, which lead beyond personalistic and purely functional conceptions and conceive of post-paradise creation as a world of irreconcilable conflicts in which compromises are unavoidable. Insofar as assuming responsibility means striving for what is possible under adverse conditions, this ethical category is best suited for attempts to narrow the gap between aspiration and reality. If a responsible form of animal ethics is to gain practical relevance for today's society, it must be developed in a systematic new way, translated in an interdisciplinary manner and introduced into political-legal discourses. A paradigm shift in dealing with animals will only succeed if it is based on a more profound change in attitudes, however. In this context, the Christian faith is needed both as a source of impetus and a recipient of impetus: "The rediscovery of the world [...] as a creature is actually still to come."⁶⁵

Christian ethics can draw on traditions that are little known even in debates between experts. As far back as 1976, for instance, the theologian Andrew Linzey not only published a comprehensive book on animal rights,⁶⁶ but also founded the Oxford Center for Animal Ethics, a key thinktank for modern animal ethics.⁶⁷ In

⁶⁵ Church Office of the Evangelical Church in Germany, Secretariat of the German Bishops' Conference (ed.): *Verantwortung wahrnehmen für die Schöpfung*. Joint Declaration by the Council of the Evangelical Church in Germany and the German Bishops' Conference, 63: op. cit., p. 39; cf. also Church Office of the Evangelical Church in Germany (ed.): *Zur Verantwortung des Menschen für das Tier als Mitgeschöpf*. EKD-Texte 41 (Hannover 1992). The original German text has been translated into English here.

⁶⁶ Andrew Linzey: *Animal Rights. A Christian Assessment of Man's Treatment of Animals* (London 1976); cf. also Michael Rosenberger: *Der Traum vom Frieden zwischen Mensch und Tier. Eine christliche Tierethik* (Munich 2015), p. 129 f.

⁶⁷ Cf. <http://www.oxfordanimaethics.com/home/>.

view of the predominantly defensive stance of Church representatives at the same time, however, “there is still a much greater need within theology for self-positioning in the debate and a specification of criteria and lines of argumentation” in comparison to philosophy.⁶⁸ Religious competence, however, does not relate to detailed catalogues of duties and criteria for animal protection, but primarily to mindsets, modes of perception and fundamental attitudes.⁶⁹ At the same time, it needs to be stressed that animal husbandry is also a key factor bearing tremendous systemic relevance to protection of biodiversity.

The exemplary significance of animal ethics

Animal ethics exhibits a particularly explosive ethical and theological significance, as it serves as an example in a re-evaluation of the question regarding the special position of humans in the world of living things against the backdrop of numerous discoveries of abilities that have long been attributed solely to humans.⁷⁰ In a certain sense, it constitutes a profound dimension in the debate over conservation of nature and biodiversity. Animal

⁶⁸ Clemens Wustmans: *Tierethik als Ethik des Artenschutzes. Chancen und Grenzen* (Stuttgart 2015), p. 9. The original German text has been translated into English here.

⁶⁹ Cf. Christof Hardmeier, Konrad Ott: *Naturethik und biblische Schöpfungserzählung. Ein diskurstheoretischer und narrativ-hermeneutischer Brückenschlag* (Stuttgart 2015), p. 213. Hardmeier and Ott also refer to *habitus* (attitude) as well as a “metaethical” approach that does not relate to individual norms, but rather to the fundamental location, enabling or also blocking of ethical reflection; cf. also Michael Rosenberger: *Der Traum vom Frieden zwischen Mensch und Tier. Eine christliche Tierethik* (Munich 2015), pp. 106–109.

⁷⁰ Cf. Frans de Waal: *Primaten und Philosophen. Wie die Evolution die Moral hervorbrachte* (Munich 2008); Frans de Waal: *Der Mensch, der Bonobo und die zehn Gebote. Moral ist älter als Religion* (Stuttgart 2015).

ethics raises fundamental philosophical and theological questions: Where do animals stand in the scale of values? To what extent is it tenable to attribute the image of God and a status as moral subjects exclusively to human beings? In the context of such profound questions, *animal turn*⁷¹, a worldwide shift in focus permeating societies which touches on human self-understanding as a cultural-scientific, environmental-historical and ethical-practical turn to animals, can be a source of impetus for an ethical change of consciousness with significant penetration of different social strata.

In animal ethics, anthropological and ethical-systematic questions are also being reassessed. However, animal ethics also faces some very practical questions: How can rational animal welfare be defined and enforced in our society on the basis of a consensus? What responsibilities do the various actors in society, agriculture, the food industry, politics and the Churches have in this regard?

Animal ethics has developed into a problem area in and of itself. This is mainly due to the fact that a pathocentric approach, which is focused on the avoidance of suffering, has predominated so far. This approach is pretty “fuzzy”, however, when it comes to species protection issues, as it places the focus on the protection of individual living beings. Gearing animal protection more towards questions of species protection could offer a specifically Christian approach originating in creation theology. A Christian animal ethics can dovetail concerns forwarded in pragmatic, pathocentric

⁷¹ Cf. Clemens Wustmans: *Tierethik als Ethik des Artenschutzes. Chancen und Grenzen* (Stuttgart 2015), pp. 167–170; Carola Otterstedt, Michael Rosenberger (eds.): *Gefährten – Konkurrenten – Verwandte: Die Mensch-Tier-Beziehung im wissenschaftlichen Diskurs* (Göttingen 2009); Markus Wild: *Tierphilosophie zur Einführung* (4th, supplemented edition, Hamburg 2019); in the English-speaking world, the term *human-animal studies* has become widely accepted in this connection.

and ecosystemic approaches and expand them theologically along the lines of an “integral ecology”. The Christian approach of assuming responsibility for creation, which in its essence is not concerned with justifying individual imperatives, but rather with a fundamental revision of the relationship between humans and nature, offers a pathway toward a significant broadening of horizons.

For the complex analytical processes that have to be performed, a normative guiding concept is needed that can be applied to different demands and contexts in asymmetrical relationships. The term “responsibility” is most aptly suited for this purpose. Responsibility can be defined as a four-sided relationship: it seeks a clear-cut answer to the question of *who* is accountable to *whom* for *what* and according to *which* criteria. A clear definition of responsibilities and duties along these four dimensions (subject/bearer, judgement/control, object/subject, criteria/rules) is crucial in the construction of an ethically and legally practicable responsibility on the part of humans for animals. A modern ethics of responsibility combines deontological with teleological elements, i. e. duties of the (unconditional) “Should” with conditional rules of action on the basis of considerations of consequences. Hence, in addition to well-founded biological and behavioural knowledge, a hierarchy of values as well as rules are needed to clarify which goods are relevant and comparable in which way. For livestock and domestic animals, behavioural indicators of animal welfare and health must be determined in order to establish rules for species-appropriate animal husbandry.

A responsible ethical approach to normative analysis of the human-animal relationship does not of course render complex, multifaceted considerations, presented here merely in example form, unnecessary. It is self-evident that the maxim of avoiding pain and suffering remains highly relevant even above and beyond pathocentric approaches to justification and can be spelled

out in concrete form in the present day through empirically supported studies on phenomena relating to consciousness and complex social behaviour in animals. However, the goal of avoiding suffering is not the all-determining aim for ethical argumentation and is not being employed with the claim of being a general basic ethical theory, but rather with the aim of formulating criteria for weighing conflicting claims. A responsible ethical approach to animal ethics has the tremendous advantage that it can be developed in a methodically reflective manner for a well-founded list of priorities and the societal organisation of their implementation. In this context, utility-based relationships with animals are also ethically permissible; it is merely *exclusively* instrumental relationships in which animals are seen solely as a means of satisfying human needs that are to be rejected.

Despite the concession that human relationships with animals based on utility can also be ethically justified, there is a controversial ongoing debate – including within the field of Christian ethics – about whether or under which conditions the consumption of animals or animal products is morally justifiable. Traditionally and also from the perspective of the Catholic Magisterium, the answer to this question is yes in the majority of cases. However, there are serious positions in secular and theological ethics (even traditionally) that arrive at a different conclusion.⁷² Particularly because of the partly unworthy conditions characterising modern animal husbandry and meat production, a growing group (especially of young people) categorically rejects the consumption of meat and in part of animal products as a whole as

⁷² Cf. e. g. Michael Rosenberger: *Im Brot der Erde den Himmel schmecken. Ethik und Spiritualität der Ernährung* (Munich 2014), especially chpt. 7: TischgenossenInnen und Nahrungsquelle. Tierethische Aspekte der Ernährung, pp. 291–354.

well. One can witness an increasing number of people who prefer a vegetarian or vegan diet throughout the world.

Plant ethics

Since the terms “plant”, “animal” and “ecosystem” are very broad and encompass living beings or habitats of very different capabilities or complexity, ethics cannot avoid making gradations and treating different areas separately. The ethical reflection of our relationship to plants is underdeveloped in western civilisation. Why should empathy only apply to humans or animals and not to plants as well? Do plants also warrant respect for their own sake? Are there moral limits to the treatment of plants or to the cultivation of crops? Plants are living creatures. Like humans and animals, they respond to environmental influences, are dependent on food and a thriving environment, have a life-cycle in which they reproduce, and can thrive or decline into unhealthy conditions or even die. Unlike humans and many animals, they have no nervous system and therefore feel no pain. Can criteria be specified for the development of the plant with associated life processes and states of vitality?⁷³ Every gardener and farmer wants plants to flourish. “Flourishing” is a term that has both descriptive and evaluative aspects and is therefore suitable for developing an empirical criterion for dealing with plants.

Such criteria and factors probably include not only light, water and soil quality, but possibly also immaterial influences such as music or atmosphere. Plants can communicate with each other and pass on information, e. g. about approaching insects, which trigger protective or attracting reactions. Kallhoff characterises

⁷³ Cf. Angela Kallhoff: *Prinzipien der Pflanzenethik. Die Bewertung pflanzlichen Lebens in Biologie und Philosophie* (Frankfurt a. M. 2002).

the flourishing of plants as an “intrinsic but extra-moral value”⁷⁴. She assigns this to a moderate anthropocentrism, which posits that the demand for direct consideration and assessment of the consequences that actions have for plant life is justified.⁷⁵ For her, three principles are decisive: consideration of the properties of plant life in cultivation, preservation of biodiversity and protection of wild nature.⁷⁶

In order to attribute an ethically relevant intrinsic value to plants, different approaches employ different terms, e. g. “ecological integrity”, “respect”, “intrinsic value” or “dignity”. Biocentric approaches recognise life as such as having an ethically relevant value and usually define it in terms of the ability to strive. The German Genetic Engineering Act refers to nature as an “environment in its structure of effects”. The maxim of “reverence for life” posited by Albert Schweitzer is often used in biocentric approaches.⁷⁷

The differences between prokaryotic and eukaryotic cells, i. e. cell types that differ in terms of whether or not they have a cell nucleus, are significantly greater than those between plant and animal cells. In this respect, the radical distinction between animals and plants in terms of their moral status in the tradition of Christian and also modern secular ethics is to be enquired into. It should rationally enough be used as one among several distinctions that are also to be made within animal and plant groups in the discussion of species conservation. However, there are also

⁷⁴ *Ibid.*, p. 118.

⁷⁵ Cf. *ibid.*, p. 147.

⁷⁶ Cf. *ibid.*, p. 133 ff.

⁷⁷ Cf. Albert Schweitzer: *Kulturphilosophie* (Munich 1923). The ethical discussion in this approach relates above all to the fact that a very ambiguous concept of “life” is used here. As a concept of value, it always means a good and successful life and not simply the biological fact of being alive.

features and traits that justify a strong distinction: plants are modular, i. e. their form is unpredictable and strongly dependent on environmental influences, whereas animals, in contrast, are unitarily constituted. Plants feed autotrophically, i. e. they only need inorganic substances for growth, whereas animals feed heterotrophically and need organic substrates as a source of carbon for life. As living creatures, plants also have the ability to strive and to prefer something. In this respect, values are not only attributed to them from the outside, but “in their own right”. They too are living beings that have the ability to process information and an autopoietic, i. e. self-sustaining and self-referential organisation.⁷⁸

Immanuel Kant’s oft-cited argument that cruelty to animals also brutalises the way humans treat each other is not a sufficient justification for animal welfare, but it is nevertheless an aspect worth considering. Pope Francis stresses this connection in *Laudato si’*: “We have only one heart, and the same wretchedness that leads to mistreatment of an animal will not be long in showing itself in our relationship with other people. Every act of cruelty toward any creature is ‘contrary to human dignity’” (*LS* 92, op. cit., p. 68). This notion can be applied in a similar fashion to plants: Empathy towards plants can promote humanity and even health. The relationship of people to plants is a not insignificant component of culture, which is highly developed, for example, in the diverse forms of garden art worldwide. The destruction of landscapes can also bring about an impoverishment of essential dimensions of human development. Landscapes often bear a major significance for cultural identity and the sense of home.

⁷⁸ Cf. Angela Kallhoff: *Prinzipien der Pflanzenethik. Die Bewertung pflanzlichen Lebens in Biologie und Philosophie* (Frankfurt a. M. 2002), p. 174.

Integral ecology

It is insufficient to only deem the various species of animals, plants and ecosystems to be possibly usable “resources”. It is crucial, rather, to perceive them in terms of their specific value, their multi-layered interrelationships and their place in the web of life that connects all creatures:

“Because all creatures are connected, each must be cherished with love and respect, for all of us as living creatures are dependent on one another. Each area is responsible for the care of this family. This will require undertaking a careful inventory of the species which it hosts, with a view to developing programmes and strategies of protection with particular care for safeguarding species heading towards extinction.” (*LS* 42, op. cit., p. 33).

Pope Francis calls this perspective on interrelationships “integral ecology” (*LS* 137–162). This iridescent term, which implies an awareness of ecosystemic as well as socio-ecological interrelationships and, beyond this, a creation-theology-based method of thinking in terms of relationships, is the guiding normative concept of the Encyclical. It is of key significance to the topic of biodiversity in particular: “Caring for ecosystems demands far-sightedness, since no one looking for quick and easy profit is truly interested in their preservation.” (*LS* 36, op. cit., p. 30).

With this concept, the Encyclical has provided a new orientation for the notion of human ecology, which has served as the guiding normative concept for almost all statements issued by the Magisterium on environmental issues since the Encyclical *Centesimus annus* (1991), and which is more clearly separate from “despotic

anthropocentrism”.⁷⁹ An ethics of integral ecology is based on criteria for the co-evolution of ecological, socio-cultural and economic systems. It integrates aspects of the quality of nature more strongly into its understanding of humanity, defining these as a constitutive dimension of successful humanity. It is sensitive to the integration of human beings into ecological contexts. To the extent that it addresses the natural prerequisites for a humane culture, it picks up on ideas and issues in the field of human ecology. At the same time, it assumes that the value attributed to animals and plants remains dependent on human perception and experience of this value. This allows the cultural dimension to be integrated in a systematically manner. Pope Francis elucidates this approach most strikingly in his post-synodal Apostolic Exhortation *Querida Amazonia*:

“If the care for people and the care of ecosystems are inseparable, this becomes especially important in places where ‘the forest is not a resource to be exploited; it is a being, or various beings, with which we have to relate’. The wisdom of the original peoples of the Amazon region ‘inspires care and respect for creation, with a clear consciousness of its limits, and prohibits its abuse. To abuse nature is to abuse our ancestors, our brothers and sisters, creation and the Creator, and to mortgage the future.’ When the indigenous peoples ‘remain on their land, they themselves care for it best’ [...]” (QA 42, op. cit., p. 30).

The concept of integral ecology updates the century-old concept of responsibility for creation by combining it with the method of

⁷⁹ Cf. Markus Vogt: *Humanökologie – Neuinterpretation eines Paradigmas mit Seitenblick auf die Umweltenzyklika Laudato si'*, in: Wolfgang Haber, Martin Held, Markus Vogt (eds.): *Die Welt im Anthropozän. Erkundungen im Spannungsfeld zwischen Ökologie und Humanität* (Munich 2016), pp. 93–104.

networked or cybernetic-systemic thinking that is compatible with natural, social and cultural sciences. It is based on a step-by-step model which allows for weighing up priorities in conflict situations. This is an indispensable tool for resolving ethical conflicts in dealing with biodiversity. It also dovetails with the concept of “*stewardship*”⁸⁰, which assumes that humans also have a cultural and creative responsibility for their natural habitats. The interpretation of this stewardship mandate and its limits is a subject of controversy, however. A fair number of representatives of the world religions as well as the Pope (cf. *LS* 106–108) see the claim to a global management of human-environment relations, which is often linked to notions of geo- and climate engineering and touted as a necessary strategy in the Anthropocene era, as hubris, proposing an ethics based on the virtues of moderation and frugality as an alternative. They see the task of theology to be to critically point out the limits of humans’ power to dispose over nature as they please and the danger that man’s domination of nature will turn into man’s domination of man.

The model of integral ecology thus offers considerable latitude for interpretation. What is clear, however, is that it includes a task of “responsible stewardship”. Today, this constitutes an essential prerequisite for intergenerational responsibility. It can only be realised within the framework of ecosocially networked, globally sustainable development and hence *planetary stewardship*, to which religions can make a significant contribution based on the tradition of faith in creation.⁸¹

⁸⁰ Markus Vogt: *Prinzip Nachhaltigkeit. Ein Entwurf aus theologisch-ethischer Perspektive* (3rd ed., Munich 2013), pp. 263–272.

⁸¹ Cf. Sigurd Bergmann, Dieter Gerten (eds.): *Religion and Dangerous Environmental and Climate Change* (Berlin/Münster 2010).

The ethical value of the creature

In the international ethical-legal debate on the protection of non-human life, the Swiss Federal Constitution assumes a prominent place. Since 1992, it has attributed “dignity” to animals and plants in their capacity as “creatures” (Art. 120). This strong notion of value was introduced in the context of the debate on the ethical evaluation of genetic engineering. Against the background that the concept of dignity in the canticle tradition of ethics is specifically oriented towards humans (the *dignita* tradition), this extension of a formative and content-rich legal concept to the extra-human sphere is problematic.⁸² It is not surprising, then, that the legal interpretation and scope of this claim for protection is extremely controversial. Does it only refer to the suffering of the creature (pathocentrism), which is to be avoided, or does it go beyond this (biocentrism)? It remains to be seen whether and, if so, under what conditions and within what borderlines genetic intervention runs counter to the “dignity of the plant”. The problem with the concept of dignity in the Swiss Federal Constitution is that it is used categorically in the ethical tradition and hence cannot be assigned any specific weight.

⁸² Cf. Hans Jürgen Münk: *Die Würde der Kreatur – Annäherung an einen Rechtsbegriff der schweizerischen Bundesverfassung aus ethischer und theologischer Sicht*, in: Wolfgang Haber, Martin Held, Markus Vogt (eds.): *Die Welt im Anthropozän. Erkundungen im Spannungsfeld zwischen Ökologie und Humanität* (Munich 2016), pp. 115–126. See also Andreas Großmann: *Würde*, in: Joachim Ritter, Karlfried Gründer (eds.): *Historisches Wörterbuch der Philosophie*, vol. 12 (Muntenz 2004), pp. 1088–1093, pp. 1091 f.; here several subsections are devoted to the use of the concept of dignity in the extra-human sphere. The Catholic dissertation by Heike Baranzke: *Würde der Kreatur? Die Idee der Würde im Horizont der Bioethik* (Würzburg 2002) as well as the publication by the former Karlsruhe sociologist Gotthard M. Teutsch: *Die „Würde der Kreatur“. Erläuterungen zu einem neuen Verfassungsbegriff am Beispiel des Tieres* (Bern/Stuttgart/Wien 1995) are stimulating.

Ethical gradations – e. g. between grass and a thousand-year-old oak tree – are nevertheless indispensable in any meaningful and operational plant ethics.

“Biblically and theologically, a twofold characteristic is of decisive importance with regard to the question of which living beings are entitled to dignity: On the one hand, the characteristic of co-creativity, which encompasses all created things, must be considered. On the other hand, the special status of human beings, as expressed in *Genesis* 1:26–28, must be appropriately acknowledged. While for the latter the image of God, the *imago Dei* (*imago* as a translation of the Hebrew *zaʿlaʿem*) became the leitmotif of a great tradition, in which a (quite changeable) symbiosis with the Latin concept of *dignitas* took place, the transparency or parable quality of extra-human creation [traditionally also falling under the designation *vestigia dei* (traces of God)] was stressed within the framework of the so-called *Bonitas tradition*.”⁸³

Under the rubric of co-creativity, nature has an ethical status that can be understood along the lines of a response to the biblical “and God saw that it was good” (*Bonitas tradition*). Respect for this recognition of value should not be interpreted as a relativisation of the special dignity of human beings as the image of God. Theologically, recognition of the goodness of creation and thus also of its intrinsic value is a necessary expression of the recognition of God as Creator, who (has) created the world and

⁸³ Hans Jürgen Münk: *Die Würde der Kreatur – Annäherung an einen Rechtsbegriff der schweizerischen Bundesverfassung aus ethischer und theologischer Sicht*, in: Wolfgang Haber, Martin Held, Markus Vogt (eds.): *Die Welt im Anthropozän. Erkundungen im Spannungsfeld zwischen Ökologie und Humanität* (Munich 2016), p. 115–126, p. 123 f. The original German text has been translated into English here.

who has brought the world into being through his will, thereby affirming his love (“*creatio ex amore*”). For believers, the fullness and beauty of life is transparent to God the Creator. In the perception of its contingency and danger, this view becomes a mandate for ethical responsibility for creation as a habitat. In this connection, the double perspective always needs to be taken into account: on the one hand, human beings are themselves a part of nature, but on the other side of the equation, they also have a duty to care for it.

The ambitious formulations “ethical value of creation” and the recognition of “animals and plants as fellow creatures” are remarkable. This terminology affirms an awareness that animal and plant protection is not only about individual legal norms, but also about fundamental ethical attitudes. These terms can convey this very aptly. However, if they are not to become empty phrases, philosophical reflection and theological ethics need to be translated into practical and effective criteria for current challenges that are being faced in the guise of plant, animal and biodiversity protection.

4. Action: Lines of conflict and priorities

4.1 Lines of conflict in land use

The problems surrounding loss of biodiversity are not primarily based on the individual guilt of individual actors, but rather on the systemic problems associated with modern forms of consumption and investment. It can be assumed that the relevant actors are subject to a variety of constraints that can only be resolved by setting priorities for society as a whole and by new forms of cross-system cooperation. In terrestrial habitats, land use plays a particularly important role, and the agricultural and food system is pivotal in the protection of biodiversity. This is characterised by a high degree of complexity, dependencies and interlinked chains of action. For decades, agriculture and farms have found themselves in the line of fire between the high price pressure being exerted by the food industry and Europeanised and globalised agricultural markets, and the often idealised ethical expectations of civil society. Today, modern agriculture is a high-performance system that has become extremely fragile under the pressure of a rapidly growing human population, a decreasing quantity and quality of fertile soils, extremely increased “output” due to selective breeding, and the greatly increased demands of the population for environmentally friendly and animal-friendly production. However, these constraints on action that are being felt by individuals, farms and industries are by no means natural, but are rather societal in nature and thus have to be shaped in a socio-ethical way.

Since biodiversity is a collective good, it must be increasingly looked upon as a significant aspect of the common good. The IPBES report has made wide-ranging proposals in this regard.

The German Bishops' Conference has already presented differentiated analyses and proposals for action with regard to use of fertile soil, which is of decisive importance to biodiversity.⁸⁴ It is crucial to align the underlying conditions of agricultural policy and land use in such a way that farms also have the financial resources to adequately protect the diversity of species. The need for reform is obvious here and it is high time for the various national and international gridlocks preventing action to be eliminated.

This report does not aim to develop a comprehensive and coherent concept for goals, instruments and measures for the protection of biodiversity. To this end, please see other sources, such as the IPBES report. Of the numerous starting points for a more sustainable land use and protection of biodiversity, those aspects in which the Churches are involved and which they could possibly support are to be highlighted in particular. Against this background, strategies for political action in agriculture are outlined in the following (section 4.2). In addition, Germany's responsibility in the international context is highlighted (section 4.3), voluntary commitments in the Church are explored (section 4.4) and the role of the individual is emphasised (section 4.5).

4.2 Reorientation of agriculture

Germany has a whole range of instruments and packages of measures involving the protection and conservation of biodiversity. It is important that areas be taken out of use so that they remain a haven of diversity and contribute to preservation of the treasures of our Earth in Germany. Wherever protected areas are

⁸⁴ Secretariat of the German Bishops' Conference: *Der bedrohte Boden. Ein Expertentext aus sozioethischer Perspektive zum Schutz des Bodens*: op. cit.

designated in the agricultural landscape, these must also become protected areas for biodiversity. Furthermore, there is the question of how to manage landscapes in use. It is not enough just to take certain areas out of use and protect them. If we were to follow this strategy, we would only create oases in a desert of desolate and destroyed landscapes. Instead, landscapes in use must also be managed in such a way that biodiversity as the basis of life for humans is permanently preserved there. These areas account for more than 50 %, i. e. a majority of Germany's land area. In contrast to forests, agricultural ecosystems are for the most part used intensively along the lines of land conversion, fragmentation and the use of fertilisers and pesticides. About 10 % of the agriculturally used area is managed according to the principles of organic farming. The guiding principle of sustainability suggests that the pathway to multifunctional agriculture is to combine food production with protection of natural resources – e. g. soil, bodies of water and biodiversity – within the framework of integrated concepts. In this context, farms play an indispensable role in preserving biodiversity and nature as well as the cultural landscape. Organic farming plays an important role in biodiversity conservation.

Responsibility for creation: an indispensable prerequisite

In this connection, responsibility for creation is an indispensable precondition and the paramount imperative for a viable future form of agricultural production and sustainable consumption. This report presented and discussed different ethical approaches to this in Part 3. All in all, the verdict is clear: responsibility for creation, preservation of nature, sustainable use of environmental resources and the safeguarding of a high level of biodiversity are fundamental – an imperative if human survival is to be ensured and from which no divergence can be made.

For society and politics, this clearly and unambiguously sets the course: a high level of environmental and animal protection must be aimed for,⁸⁵ while efforts for more ambitious environmental, climate and biodiversity protection must be intensified and assigned high priority in all social decisions. All too often, these aspects are given too little weight in private as well as public considerations (e. g. in designating areas in the context of municipal zoning of businesses or private households or in designating forms of cultivation for farms). Instead, priority is given to narrow parochial economic interests that are geared to short-term profits and individual benefits. A fundamental *volte face* is needed here. Climate and biodiversity issues in particular underscore that these decisions are not about small-scale problems caused by individual environmental impacts, but about far-reaching global impacts that affect almost all elements of humanity. This requires nothing less than comprehensive conservation of nature.

With regard to use of agricultural land, this means that there can be no doubt that high standards must be aimed for and maintained. It must be recognised that a high level of environmental protection is necessary to ensure a viable future. This is increasingly being demanded by society and must therefore, with society's support, also serve as the guiding principle for action in agriculture. Ecological guidelines for the protection of soil, landscape and biodiversity are not to be categorised as “expropriation”, as is sometimes contended, but rather as a consequence of the obligation of the common good applied to property. Citing the private property nature of soil does not hold up in this context, nor does it in view of the ethical or legal or ecological considerations

⁸⁵ The results of the “Borchert Commission” on the future of farm animal husbandry are also related to this, cf. https://www.bmel.de/SharedDocs/Downloads/DE/_Animals/FarmAnimals/200211-recommendation-kompetenzenetzwerk-nutztierhaltung.html.

mentioned above. According to the German Basic Law (Art. 14, Para. 2), property entails obligations. Its use must also serve the public good, and the division of rights according to the type of land use between farmers and society merely reflects this.⁸⁶ Current developments in efforts to significantly reduce the use of pesticides in agriculture through technological advances warrant support in this context (“precision farming”).

Expressing appreciation:

Putting agricultural income on a new footing

The orientation towards ethical principles for environmentally compatible land use that preserves and restores biodiversity can only succeed if this task is also recognised and supported by society and the instruments and measures set out in agricultural policy are designed and focused accordingly. Understanding that appreciation of nature’s diversity is an ethical imperative and combining this realisation with nature-friendly forms of cultivation is a societal task. Sustainable agriculture requires a socially balanced form of economic development that is embedded in protection of the climate, environment, nature and species.

The difficult economic situation faced by many farmers, however, their dependence on the demand of powerful buyers and the conditions they impose as well as their global economic interdependence must be taken into consideration. In view of these conditions, many farmers find themselves in a dilemma: On the one hand, they want to farm sustainably and stand up for conservation of nature; on the other hand, price conditions and their income situation are forcing them to further intensify their production – often with highly negative effects. What is needed,

⁸⁶ Cf. Bartosz Bartkowski et al: *Institutional Economics of Agricultural Soil Ecosystem Services*. In: *Sustainability* 10 (2018), 2447.

therefore, is a societal appreciation and valorisation that recognises their achievements in preserving nature and biodiversity, emphasises the value they create for the general public and supports agriculture in creating and preserving these values. Recognition of services and appreciation can come in a variety of forms. Although financial approaches are not the only form, they are of particular importance in the context of agricultural production against the backdrop of global agricultural markets. The public support system, based on the Common Agricultural Policy (CAP), plays a prominent role in this context. The CAP is one of the oldest and financially most extensive policy areas of the European Union: in 1982, roughly 70 % of the EU budget was devoted to the CAP; (2020) the figure still hovers at around 35 % today.⁸⁷

A majority of farmers would not be able to make ends meet in the current CAP system without this support – payments in Germany often account for 40 % or more of agricultural income. At the same time, area-based support (“Pillar I of the CAP”) is one of the main causes of the high level of intensification in agriculture and thus overproduction and “misproduction”, ruinous price competition and food waste as well. Agricultural policy is one of the most glaring examples of an allocation of resources originally motivated by solidarity (income support) and increased efficiency (increase in food production), but which in the end has negative ecological, economic and social effects: From an ecological point of view, intensive agricultural production has massive environmental repercussions (pollution of water through heavy use of fertiliser and pesticides, degradation of soil fertility, clearing of rainforests for fodder production, high greenhouse

⁸⁷ European Parliament (ed.): *Financing of the CAP* (2020);. <https://www.europarl.europa.eu/factsheets/en/sheet/106/financing-of-the-cap>

gas emissions, etc.). Economically, the linking of direct payments to land area leads to skewed preferential treatment in terms of distributive fairness, since 80 % of CAP payments go to only about 20 % of the farmers. Moreover, it is not possible societally to (re)invigorate structurally weak rural areas and make them more attractive.

The key principle in a transformation of the CAP is: public financial resources for public benefits. Environmental, climate and biodiversity services should be aimed at with, for example, measures such as crop rotation, soil cover, type of cultivation, prevention of fragmentation, edge strips, hedges or different mowing regimes.

Some farmers fear increasing red tape and control, especially if the demands for such a reorganisation of agricultural and environmental policy are linked to a stronger orientation of payments towards results. Many sensible demands pointing in this direction appear to have failed so far because an intelligent and differentiated system of compensation for ecological services would have to be both simple and cost-effective. Specific ideas are needed here for an indicator and remuneration system, such as a point system, which takes into account the various demands and needs.

Involving agricultural and food system stakeholders as well as consumers

A reorientation of the CAP towards sustainable production could encourage a paradigm shift away from an exclusive focus on production in the direction of a greater appreciation of environmental, climate, nature and biodiversity measures. At the same time, it could underscore that agricultural production is part and parcel of a systemic context. A sustainable agricultural and food system is about more than just production, and a paradigm shift

of the magnitude called for in this report requires more than just the CAP. It is crucial, rather, to move levers and incentives in the agri-food system *as a whole* (across the entire value chain) to new targets that are pegged to environmental performance.⁸⁸ This directs attention in particular to the role of trade and consumers, both of whom must and are also able to contribute to assumption of responsibility for creation. Commerce and trade are the gatekeepers in the distribution of goods and information in the supply chain. They decide what goods are placed on the shelves and can thus play a crucial role in bringing about a change in values in the aforementioned direction, for example by taking greater account of regional and ecologically produced products, through their purchasing behaviour and through the labelling and placement of goods.

But consumers also bear responsibility and there are promising approaches for action here as well. In this context, the avoidance of food waste and the reduction of excessive consumption of animal products deserve mention.⁸⁹ The most recent Leopoldina study on the biodiversity crisis explicitly drew attention to the role and importance of animal production and the use of meat and other animal products:

“The production of meat, milk and other animal products is a major cause of biodiversity loss and climate change: The industrialised countries (OECD, EU, Russia) – 20 per cent of the world’s population – consume 40 per cent of the

⁸⁸ See The Economics of Ecosystems and Biodiversity (TEEB): *TEEB for Agriculture & Food: Scientific and Economic Foundations Report* (Geneva: UN Environment 2018).

⁸⁹ Cf. Gerhard Kruip: *Darf man noch Fleisch essen?* Kirche und Gesellschaft Grüne Reihe Nr. 440, put out by the Katholische Sozialwissenschaftlichen Zentralstelle (Cologne 2017).

world's meat production due to their high meat consumption (over 80 kilograms per capita per year). The production of animal products (meat, milk, other animal products) is extraordinarily land-intensive, taking up 60 to 70 per cent of global and European agricultural land (green land and arable land), of which on average 40 per cent of arable land is used to grow animal feed. Meat and milk, however, provide only 18 per cent of global food calories. Total soy imports into the EU (which are mainly used for meat and milk production) are calculated to require about 150,000 square kilometres of arable land; this corresponds to 90 percent of Germany's agricultural land. Around 70 per cent of the rainforest losses in South America were caused by meat production, of which around 10,000 square kilometres (area of the average annual deforestation area in Brazil) were caused by feed imports to Germany alone."⁹⁰

Against this background, moderation in meat consumption is urgently needed for ethical reasons. It is important to note that this does not mean completely abstaining from meat, but at least halving current average meat consumption. Individuals can start here and make an important contribution to climate protection and also to biodiversity protection.

The Church as an initiator and moderator of dialogues

Particularly due to the highly polarised nature of the debate on agriculture and agricultural policy, which are crucial fields of action in the protection of biodiversity, the Church can play a

⁹⁰ Cf. Nationale Akademie der Wissenschaften Leopoldina (ed.): *Globale Biodiversität in der Krise – Was können Deutschland und die EU dagegen tun?* Diskussion Nr. 24 (Halle/Saale 2020), p. 11. The original German text has been translated into English here.

moderating role, as it is an institution that is able to connect people from very different walks of life. Moreover, it only has a few of its own direct interests in the topical area under scrutiny and has a high level of presence in educational work. It can convey basic ethical attitudes from whose common basis the various parties can begin to address complex conflicts in a fair and open manner. The Church can reach out to different groups in society, such as the quite heterogeneous occupation of farmers, actors from the fields of public policy-making, the food industry, environmental groups or the media and, last but not least, the large group of consumers. As a global community, it can always bring in the perspectives of people in the Global South. Of course, this presupposes that it also sets the highest standards for its own actions.

4.3 Germany's responsibility in international contexts

On the international dimension of the debate

The 2019 IPBES Progress Report presents both a broad range of exemplary actions to promote sustainability and ways to achieve these in and across sectors such as agriculture, forestry, marine technology, freshwater systems, urban areas, energy, finance and many others.

“The report (...) highlights the importance of, among others, adopting integrated management and cross-sectoral approaches that take into account the trade-offs of food and energy production, infrastructure, freshwater and coastal management, and biodiversity conservation.

Also identified as a key element of more sustainable future policies is the evolution of global financial and economic

systems to build a global sustainable economy, steering away from the current limited paradigm of economic growth.”⁹¹

The designation of protected areas plays a key role with regard to biodiversity, both globally and in Germany. Protected areas are places where flora and fauna find refuge. Biodiversity can be preserved and nurtured here. At the same time, protected areas are zones for regeneration that also benefit people. According to Pope Francis: “We need to support the U.N. call to safeguard 30 % of the earth as protected habitats by 2030 in order to stem the alarming rate of biodiversity loss”⁹². Many stakeholders are calling for 50 % of the Earth’s land to be protected.⁹³ These initiatives should be supported in order to meet humans’ responsibility for creation. On the other side of the equation is the demand for food, which is expected to increase, as well as (according to many scenarios, including those of the IPCC) a considerable demand for land for climate protection. Conservation of biodiversity should be given due consideration when weighing out different societal goals (e. g. food security, climate protection) in order to meet the agreed goals for biodiversity conservation. This requires a further expansion of existing protected areas and other effective, area-based conservation measures to preserve and stabilise the Earth’s biodiversity. Germany and other developed

⁹¹ <https://ipbes.net/news/Media-Release-Global-Assessment/>.

⁹² Pope Francis: *Message of His Holiness Pope Francis for the World Day of Prayer for the Care of Creation* (1 September 2020), p. 4, https://www.vatican.va/content/francesco/en/messages/pont-messages/2020/documents/papa-francesco_20200901_messaggio-giornata-cura-creato.html.

⁹³ Cf. on this and the following Nationale Akademie der Wissenschaften Leopoldina (ed.): *Globale Biodiversität in der Krise – Was können Deutschland und die EU dagegen tun?* Diskussion Nr. 24 (Halle/Saale 2020).

countries should therefore act as strong advocates of a further expansion and protection of conservation areas on a global scale.

This could also strengthen the Earth's resilience in the face of climate change. Many protected areas and measures serve not only protection of biodiversity, but also climate protection: species diversity and climate protection on the entire planet are highly dependent on developments in the Amazon basin, for example, which is a large reservoir of biodiversity as well as one of the largest sinks for CO₂. These functions are currently in jeopardy, however. Biodiversity and the use of ecosystem functions and services are central elements of ecosystem-based adaptation to climate change.⁹⁴ For this reason, the upcoming review and increase of the Nationally Determined Contributions (NDCs) laid down in the Paris Climate Convention should also be considered for ways of dovetailing with climate protection in order to boost the role of biodiversity-promoting measures. In particular richer parties could take the lead and provide additional support to poorer countries in helping them to implement biodiversity-enhancing measures.⁹⁵ Similarly, voluntary carbon markets should and will increasingly take into account other dimensions in addition to CO₂ reduction, such as Climate, Community and Biodiversity Standards (CCB Standards). This approach could also be applied in the context of the Paris Agreement, Article 6 of which regulates the trading of emissions to

⁹⁴ Cf. guideline decision 14/5 from COP 14 of the Convention on Biological Diversity (CBD/COP/DEC/14/5 of 30 November 2018).

⁹⁵ Cf. Nathalie Seddon et al: *Nature-based Solutions in Nationally Determined Contributions: Synthesis and recommendations for enhancing climate ambition and action by 2020* (Gland/Oxford 2019).

avoid climate-damaging greenhouse gases.⁹⁶ Effective biodiversity protection requires reliable and fair global cooperation based on multilateral negotiations.

The socio-political and intercultural dimension of the debate

Biodiversity protection needs to be further developed and obtain support in the area of social policy and be accompanied by active involvement and participation as well as – wherever necessary – courageous defence of small farmers against big agrobusiness. In this context, there is considerable overlapping between the interests of countless rural families in the Global South and the concerns of biodiversity protection. Such a unity of animal protection and protection of humanity corresponds to the ecosocial approach adopted in the encyclical *Laudato si'*. The Churches' international commitment to small farmers in developing countries, especially through the aid agencies Misereor, Adveniat, missio and Brot für die Welt, is a symbol of hope for many people.

“Our dream is that of an Amazon region that can integrate and promote all its inhabitants, enabling them to enjoy ‘good living’. But this calls for a prophetic plea and an arduous effort on behalf of the poor. For though it is true that the Amazon region is facing an ecological disaster, it also has to be made clear that ‘a true ecological approach always becomes a social approach; it must integrate questions of justice in debates on the environment, so as to hear both the cry of the Earth and the cry of the poor’. We do not need an environmentalism ‘that is concerned for the

⁹⁶ Cf. European Bank for Reconstruction and Development: *Operationalising Article 6 of the Paris Agreement* (London 2017).

biome but ignores the Amazonian peoples’.” (*QA* 8, op. cit., p. 8).

To take an example from actual Church practice: For more than 60 years, the Episcopal relief organisation Misereor has been working with human rights’ and farmers’ organisations to conserve natural resources and ensure access to soil, water and seeds. All partners operate according to the principles of agroecology. This reshapes the food system according to ecological principles and is based on a holistic approach. It constitutes an alternative to intensive, chemical-industrial agriculture, which is based on high energy, material and financial inputs. Agricultural ecology incorporates methods adopted from the areas of permaculture and ecological agriculture. Its methods are the opposite of monoculture: they always seek to encourage diversity and resilience. In South America, for example, so-called dynamic agroforestry systems are being tested in which the high level of rainforest productivity is adopted in agricultural production. In the Philippines, farmers are trained to produce their own seeds adapted to their particular location, which are then exchanged and not traded. In addition, Misereor works with various groups that are committed to preserving or strengthening the land rights of farmers.

In order to foster the Amazon region, it is good, in the words of Pope Francis, to “combine ancestral wisdom with contemporary technical knowledge, always working for a sustainable management of the land while also preserving the lifestyle and value systems of those who live there” (*QA* 51, op. cit., p. 36). They, particularly the original peoples, have a right to receive – in addition to basic education – thorough and straightforward information about projects, their extent and their consequences and risks. There is a particularly urgent need to establish a legal framework which can set clear boundaries and ensure the protection of ecosystems and original peoples (see *QA* 52). Original

peoples and communities must also be involved in decisions that affect the ecosystem conditions of their habitats.

One controversial question is whether and to what extent compensation payments for the renunciation of rainforest clearing are reasonable and fair. If one assumes that rainforests are part of the “global commons”, then it follows from the principle of the common good of property that states and societies have a duty towards the world community to treat their natural resources responsibly and with care. In terms of justice theory, this cannot be made contingent on compensation payments. Moreover, the problem of blackmail and extortion would arise, since every state could then demand payments from the international community in return for refraining from damaging its globally relevant natural resources. Irrespective of this, it may be warranted in individual cases to offer incentives and support for a change in the way rainforests and other habitats relevant to biodiversity and the global climate are managed.

4.4 Voluntary commitments by the Church

This statement of position on the highly complex global problems surrounding biodiversity should not be concluded without taking a look at the Church's⁹⁷ as well as individual possibilities for action in Germany.

⁹⁷ Cf. Beatrice van Saan-Klein, Marta Wachowiak: *Vielfalt als Gewinn. Kirchengemeinden und Biodiversität* (Heidelberg 2008); Beatrice van Saan-Klein, Rike Schweizer: *Vielfalt als Gewinn. Aktualisierte und erweiterte Projektberichte Biodiversität und Kirche* (Fulda/Heidelberg 2013); Arbeitsgemeinschaft der Umweltbeauftragten der deutschen (Erz-) Diözesen

Possible actions by the Church

To start with some positive examples: A large proportion of bats nest in Church buildings (e. g. 70 % of the total in Bavaria), and about two-thirds of all kestrels raise their offspring in Church towers. These species, like barn owls, swifts and jackdaws, can be protected with relatively little effort.⁹⁸ For centuries, old parish gardens have served as places for the preservation of a variety of fruit species, thereby ensuring that back-breeding of these so-called “old” fruit species is still possible today. Monasteries and municipalities possess considerable areas of species-rich wetland biotopes and orchards, which are used extensively and in some cases are even being renaturalised.

As the Churches are among the largest landowners in Germany, they have considerable leverage to promote biodiversity conservation in their own domain of responsibility. The German Bishops’ Conference has thus forwarded the following recommendation to German (arch)dioceses:

“For reasons of soil and water protection and to preserve biodiversity, Church land should be treated in a sustainable manner. This applies to the cultivation and maintenance of land around Church buildings and Church-owned cemeteries, as well as to the way in which other land of the (arch)diocese and other Church-owned legal entities is cultivated. When leasing agricultural and forestry land from Church owners, the selection criteria for potential tenants and the structure of the lease agreements and the rent

(AGU) u. a. (ed.): *Biodiversität und Kirchen – eine Empfehlung der kirchlichen Umweltbeauftragten* (Heidelberg 2013); https://www.bfn.de/fileadmin/BfN/gesellschaft/Dokumente/BIODIV_Kirchen_agu_bf_publ.pdf.

⁹⁸ Cf. the cooperation project “Lebensraum Kirchturm” by LBV, NABU and the Churches.

should promote sustainable, including ecological, agriculture. We recommend a transparent award procedure. In order to create sales opportunities, Church institutions should give preference when buying food to local and, if possible, sustainable production.”⁹⁹

The fact that recommendations along these lines are needed from the Bishops’ Conference shows that Church practice on the ground still unfortunately often offers a contrasting picture. The Church public, however, both inside and outside, is now following with great interest Church (non-) action in this area, e. g. in the context of the Bavarian petition for a referendum on the protection of biodiversity and the round table subsequently convened by public policymakers. Pressure to act is mounting, especially with regard to an appropriate management of Church-owned enterprises in forest, arable and grassland areas and to corresponding requirements applying to the leasing of Church land:

“The representatives of Church institutions have the task of actively approaching managers and seeking an exchange. It is important to jointly explore goals and possibilities and to offer support in order to achieve joint implementation. To this end, landlords and tenants can call on the help and advice of third parties as well as financial support from various sources. At the same time, landlords can also make

⁹⁹ Secretariat of the German Bishops’ Conference (ed.): *Schöpfungsverantwortung als kirchlicher Auftrag. Handlungsempfehlungen zu Ökologie und nachhaltiger Entwicklung für die deutschen (Erz-)Diözesen*, 8: Arbeitshilfen Nr. 301 (Bonn 2019), p. 6. The original German text has been translated into English here.

demands and set out requirements in order to be sure that the desired goals are achieved.”¹⁰⁰

The biodiversity-friendly operation of buildings as habitats for protected species and the appropriate design and structure of surrounding areas and cemeteries would be less controversial and have a major impact. These can become true “sanctuaries” for rare mosses, for example, and biotopes for numerous bird species in terms of biodiversity.¹⁰¹

The Churches also have tremendous leveraging opportunities to generate a demand for biodiversity-friendly food production if only by adjusting the cuisine in Church institutions. These can make a not insignificant indirect contribution by opting for sustainable food, especially (organic) regionally produced food, by reducing animal products and by resolutely avoiding food waste. In view of the large volume of food purchased for kitchens in the Church sector in Germany, such a switchover can have a significant quantitative impact.

The cultivation of a Christian spirituality of creation needs to assume an important place in common prayer, in Church proclamation, catechesis and Church services¹⁰² and can stand out as an essential dimension of Church commitment in the context of

¹⁰⁰ Benjamin Schwarz, Michael Rühs, Thomas Beil: *Artenreiche Landwirtschaft auf Kirchengrund. Chancen gelebter Schöpfungsverantwortung. Eine Handreichung zur Umsetzung von Naturschutzmaßnahmen auf kircheneigenem Land* (Regensburg 2018), p. 4. The original German text has been translated into English here.

¹⁰¹ Cf. *Biodiversität auf kirchlichen Friedhöfen. Ein Projekt der Ev.-luth. Landeskirche Hannovers*, https://www.ekd.de/agu/publikationen/agu/agu_friedhof_ausstellung.html.

¹⁰² Cf. Sekretariat der Deutschen Bischofskonferenz (ed.): *Schöpfungsverantwortung als kirchlicher Auftrag. Handlungsempfehlungen zu Ökologie und nachhaltiger Entwicklung für die deutschen (Erz-)Diözesen*: op. cit., p. 2.

species conservation. Another important field of action for the Churches is educational work. In its numerous nursery schools, church schools, in religious education, at Church-run rural colleges and other educational institutions, Church academies and theological faculties, the Churches have a wide range of opportunities to promote awareness of the urgent need to protect biodiversity in its creation-theological, social-ethical and practical dimensions.

Opportunities for mobilising public awareness arise above all through positive motives under the banner “life needs diversity”. The beauty of landscapes and nature can be experienced above all when an individual spends time in the surroundings of nature, i. e. through experiential and nature education programmes, excursions, bicycle rides, hikes and ecotourism education formats. The pilgrimage tradition is also an excellent opportunity and can be combined with motifs of creation spirituality and cultivation of an awareness of the diversity and beauty of nature. In addition, traditional approaches nurturing an attachment to the notion of Home offer propitious points of departure.

The Catholic Church can continue to advocate for the protection of biodiversity as part of its social and political commitment. Discussions with decision-makers at the regional and national levels as well as public proclamations are tried-and-proven ways to achieve this. In addition, international contacts, for example at the level of the Commission of the Bishops’ Conferences of the European Union (COMECE), in connection with thematic work of the Holy See or at meetings of the Synod of Bishops, can be used to facilitate international understanding on issues involving responsibility for creation and an exchange of Church experience from specific national perspectives.

4.5 What the individual can do

The protection of biodiversity requires an ecological turnaround. It requires a mindset that learns to appreciate the diversity of nature anew and, despite all resistance and pushback, uses its own possibilities for consistent action on both a small and a large scale. Conservation of biodiversity constitutes both a political and societal challenge and a duty for all people to take greater account of the well-being of nature in all its diversity in their personal lifestyles and in the priorities they set in their consumptive behaviour. As mentioned above, consumers can become a powerful factor, especially in the agricultural and food chain, if consumption is geared more towards sustainably produced regional products and excessive meat consumption is avoided. Individual civic engagement in civil society and the political arena can also be geared towards preserving biodiversity.

In promoting this posture, the Christian spirit of creation can provide an important impetus. In all this, the ability to exercise moderation remains a guiding virtue:

“Christian spirituality proposes (...) to take up an ancient lesson, found in different religious traditions and also in the Bible. It is the conviction that ‘less is more’. (...) It is a return to that simplicity which allows us to stop and appreciate the small things, to be grateful for the possibilities that life offers us, to be spiritually detached from what we possess, and not to succumb to sadness for what we lack. (...) Sufficiency lived unabashedly and consciously is liberating. (...) It is not a lesser life or one lived with less intensity. On the contrary, it is a way of living life to the full.” (*LS* 222 f., op. cit., p. 154).

The Authors

Working Group for Ecological Issues of the Commission for Society and Social Affairs of the German Bishops' Conference

Jürgen Becker, State Secretary, ret.

Michael Dittrich

Dr. Gotthard Dobmeier

Christian Haase, Member of the German Bundestag

Prof. Dr. Bernd Hansjürgens

Mattias Kiefer

Prof. Dr. Andreas Lienkamp

Auxiliary Bishop Rolf Lohmann (Chairman)

Prof. Dr. Andreas Löschel

Prof. Dr. Ortwin Renn

Dr. Christoph Schinke (Coordinator)

Dr. Gabriela Schneider

Prof. Dr. Markus Vogt

Herausgeber
Sekretariat der Deutschen Bischofskonferenz
Kaiserstraße 161, 53113 Bonn
www.dbk.de

