Rainer Lisowski[1]

Strategies on Biodiversity: German Municipal Administrations

Summary: While the discussion about climate change attracts a great deal of media and public attention, another environmental issue is often overshadowed by this discussion: the global loss of biodiversity (species diversity, diversity of natural areas, number of individuals). Wrongly so, because the so-called planetary boundaries have been reached to a greater extent for biodiversity than for climate change. Politicians and administrators at all levels are trying to address the issue. This article is an initial, exploratory approach to analysing municipal biodiversity strategies. Essentially, the aim is to categorise the strategic approaches to be found therein and to roughly assess their significance.

Keywords: biodiversity, biodiversity strategy, environmental protection, public administration

A. Preliminary considerations[2]

A cartoon on the subject of species loss shows an elderly gentleman in a dressing gown sitting in his reading chair on a cliff, reading about the extinction of various animal species in the newspaper, but shrugging his shoulders and asking what the loss of a few critters has to do with him. A long rope is tied around his neck and lies coiled up behind him. Various animals are tied to this rope, such as a penguin, a tiger or a blue whale,

---

1 Rainer Lisowski is Professor for Public Management at the School of International Business, University of Applied Sciences Bremen, Germany. He has studied Political Science and Economics. Before being appointed as Professor in Bremen he worked in various functions in Public Management, public and private companies. He travels to Africa and Asia on a regular base for research and lecturing purposes. His research is mainly empirically driven, often following qualitative research paradigm. He has published several books on various political issues. Contact: rainer.lisowski@hs-bremen.de.

2 Disclosure: the translation engine "deepl" was used to translate this chapter from German to English, due to efficient time-management. Quotations that were originally in German have been translated into English, using the same AI.

https://doi.org/10.5771/9783957104434-161 https://www.inlibra.com/de/agb - Open Access - (cc) BY

which fall from the cliff and so it is only a matter of time before the man reading the newspaper is pulled down with them.

It is not uncommon for science, especially the social sciences, to be accused of blurring the line between science committed to objectivity and political activism. This accusation is not always inaccurate. Throughout his life, Karl R. Popper advocated making it clear in advance of a scientific publication which personal convictions and attitudes could influence the respective study in the background. This good example will be followed here: The author of this essay became an enthusiastic hobby beekeeper a few years ago and in this way discovered his love for a few furry insects. This has awakened his interest in the protection of the insect world, on which a large part of the food chain, including us humans, ultimately rests. He was also strongly influenced by the British biologist Dave Goulson's publication 'Silent Earth', which uses the latest entomological research to illustrate the process of biodiversity loss in the insect world in a way that everyone can understand. (Goulson, 2023) This means that there is already a formative previous experience that affects the perception of the problem.

B. The problem in a nutshell

Even an interested specialised public is often unaware that there is also an international scientific panel, the IPBES, for the topic of biodiversity. Similar to the much better-known IPCC for climate change, the IPBES endeavours to keep the global public and political decision-makers informed about the status of research into the loss of biodiversity. This is because it is indeed a problem that actively affects humanity. Destroyed ecosystems provide no habitat for animals. However, humans are dependent on many ecosystem services for their food chain, i.e. services provided by nature that humans cannot create themselves. The pollination activity of insects alone is a quasi-mandatory prerequisite for almost all types of fruit and vegetables that humans consume. Marine ecosystems are indispensable for supplying mankind with protein from the sea. Accordingly, the IPBES attempts to assess the current extinction risk for various animal species, using the well-known Red List of Extinct Animal and Plant Species, among other things. Some of these have already suffered serious losses. In the case of amphibians, for example, 30% of the various species are already considered threatened, which in turn must be differentiated into: vulnerable, endangered and critically endangered (IPBES, 2019, S. 28). One might argue that paleobiologists estimate that 99.9% of all species that have ever lived on Earth are now extinct. In fact, a species has a statistically normal lifespan of only around 10

https://doi.org/10.5771/9783957104434-161 https://www.inlibra.com/de/agb - Open Access -

million years and there have been at least five mass extinctions in the past geological eras. However, this view does not take sufficient account of the time factor, as it is estimated that the current wave of extinctions triggered by humans is taking place around a thousand times faster than natural extinction processes. As in the climate debate, this raises a hotly debated topic, namely the question of so-called tipping points, of which we neither know exactly when they will be reached nor what consequences are to be expected (Fischer & Oberhansberg, 2021, 24, 25, 51).

In the case of biodiversity, one such tipping point would be the destruction of the tropical rainforest. All we know is that it could be difficult or impossible to rebuild the forest within a normal human timeframe and that dramatic consequences are to be expected for the flora and fauna affected. If not for life on the entire planet.

In addition, there are other direct consequences for ecosystems and ultimately for humans. One example of this is the study conducted by the Alfred Wegener Institute for the WWF. It analysed the impact of plastic pollution in the oceans on marina species and marine ecosystems. The results showed that 88% of the species analysed were affected by plastic waste in the ocean. It is estimated that by 2050, 99.8% of all seabirds will have plastic particles in their stomachs (Tekman et al., 2022, 6, 12). Another problem that is difficult to assess is the contamination with nanoplastics. As larger pieces of plastic are not broken down directly, but are instead mechanically reduced in size, they eventually reach the size of nanoparticles. And the fear is that this nanoplastic could cross the blood barrier of the brain and become lodged in the brain as a foreign body. It is precisely at this point that no immediate improvement can be expected, even if action were taken quickly. Even if, hypothetically, all plastic production were to cease as of today, the amount of plastic in the oceans would still double by 2050 due to the delayed entry of plastic into the oceans. (Tekman et al., 2022, S. 10)

C. Local pressure to act and political procedures

These global problems are difficult if not impossible to solve from the perspective of local administrations. At best, small contributions are possible. However, there are also a number of problems at local level that affect biodiversity in rural or urban areas, for example in relation to the insect world, where food chains often begin. Even if the overall situation is unclear, various large-scale studies, for example from Austria, now indicate that populations are changing significantly (Bundesministerium für Land- und Forstwirtschaft, Regionen und Wasserwirtschaft, 2023).

https://doi.org/10.5771/9783957104434-161 https://www.inlibra.com/de/agb - Open Access -

If we look at a medium-sized city that is common in Western Europe, such as the manageable city of Oldenburg, which is now ranked 47th among major German cities, then the following six developments are having a major impact on biodiversity even here in this tranquil local authority:

1. habitat loss due to urban growth
2. fragmentation of habitats
3. use of agrochemicals
4. over-fertilisation
5. climate change
6. neophytes and pathogens

Cities are popular. Due to the strong growth of the city in recent years, new building areas have been designated, leading to the loss of natural habitats on the one hand and the fragmentation of animal habitats in urban areas on the other. A good example of this are solitary bees, many of which are protected in Germany. One wild bee species is the sand bee *Andrena fulva*, which pollinates berries very effectively. They are dependent on loose, sandy, unpaved soils, which are naturally becoming increasingly scarce in densely populated urban areas. Most people are unaware that agrochemicals are also a major problem in the urban context. While a ban on glyphosate is being discussed on agricultural land, this product is freely available for sale under other trade names in almost every DIY store and is also used accordingly. However, the sum of the many small applications is of course just as harmful to nature. Unfortunately, the negative effects of glyphosate on insect populations are only gradually becoming clear. The manufacturer itself points out that the product is not directly lethal to insects. However, studies with bumblebees, which are wild bees, have shown that glyphosate has a sensitive effect on the thermoregulation of the bumblebee nest and thus severely damages the reproductive success of the species (Weidenmüller et al., 2022). A final example is the aforementioned over-fertilisation. Many urban gardens have lawns, which in themselves represent a rather inhospitable habitat for most animals, even if they appear green to the human eye. They are sometimes referred to as 'green deserts'. Increasingly, robotic lawnmowers are being used to avoid the tedious task of mowing the lawn. The mowing rots on site and leads to an ever-increasing enrichment of the soil with humus. This is also referred to as over-fertilisation. If these over-fertilised soils were to be turned back into more attractive habitats, they would have to be depleted again in a lengthy process.

In short, while many agricultural problems are already the subject of intense scientific debate, biodiversity problems in urban areas are rarely

https://doi.org/10.5771/9783957104434-161 https://www.inlibra.com/de/agb - Open Access - (cc) BY

discussed. Yet the local context is essential if the EU's biodiversity policy objectives are to be achieved in any way.

D. Hierarchy of norms and political activities at different levels

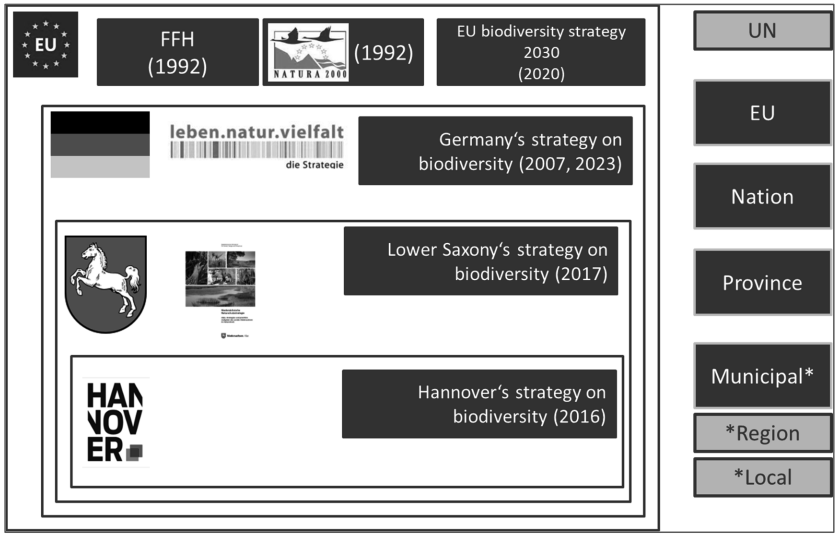
As a rule, Europe's political systems are now rightly referred to as a multi-level system due to the penetration of the European Union's activities. If one looks at the political activities in the field of biodiversity, this is easy to understand. Irrespective of the goals of the United Nations (Kunming-Montreal global biodiversity framework), it is above all the European Union that is an important driving force for environmental protection on the Western European continent. Examples of this are the FFH and Natura 2000 initiatives (1992). In the context of the European Green Deal, the EU Biodiversity Strategy 2030 from 2020 is particularly noteworthy (Europäische Kommission, 2020).

However, there are also biodiversity strategies at national level. The German one, for example, dates back to 2007 and was modified and expanded in 2023 (Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit, 2015). The federal states have not been idle either. Lower Saxony developed its own strategy for biodiversity in 2017, and thus relatively late (Niedersächsisches Ministerium für Umwelt, Energie und Klimaschutz, 2017). Numerous local authorities have also developed activity programmes, some of them as pioneers. The strategy of the Hannover Region[3] on Biodiversity from 2016 is an example and decisive for this study (Region Hannover, 2016).

3 Hanover is the state capital of the German state of Lower Saxony. The Hannover Region is the merger of several districts in the metropolitan region of the state capital.

https://doi.org/10.5771/9783957104434-161 https://www.inlibra.com/de/agb - Open Access -

Overall, this results in the following cascade of actions and regulation:



From a technical and political science perspective, a combination of European and municipal regulations in particular makes sense. As an unelected authority in 'distant Brussels', the EU Commission is less sensitive to strong political dissatisfaction caused by bans that directly affect citizens. The local level, on the other hand, is better placed to decide on a case-by-case basis which biological measures make sense locally, as these should be adapted to the relevant local habitats. If you look at the population density by NUTS 2 regions in Europe in Eurostat alone[4], it immediately becomes clear that only a community-based fine-tuning model makes sense.

It would be necessary to analyse more closely whether the two levels are well interlinked. A look at the European Union's biodiversity strategy papers and a glance at the municipal papers give the impression of at least a mixed picture. On the one hand, the EU emphasises the need for systemic change more strongly, but then does not formulate exactly which bans on certain pesticides are envisaged, for example. On the other hand, the European Union operationalises with concrete figures how much more land

4 https://data.europa.eu/data/datasets/qegn3fjf0sqo7qpan8t9g?locale=en

https://doi.org/10.5771/9783957104434-161 https://www.inlibra.com/de/agb - Open Access - (cc) BY

in the EU should be placed under stronger protection. To anticipate the following result: In fact, this expansion of protected areas is a key aspect of the municipal strategy papers.

E. Strategic patterns

However, the aim of this first preliminary study is to examine and analyse some examples of biodiversity strategies of German municipalities in order to create the basis for a more comprehensive study. The interest group 'Communities for Biodiversity', which has documented over 50 such municipal strategy papers on the Internet, provides a good initial basis for this (Kommunen für die biologische Vielfalt e.V., o.J.). Methodologically, a certain degree of caution is necessary here. The term 'strategy paper for biodiversity' is not legally standardised and the various documented plans sometimes pursue different objectives. Nevertheless, this data set provides a good approximation of the field to be analysed.

The question remains, which strategy papers should be analysed first? John Cresswell proposes a very robust approach for qualitative analyses: "Pick one document (…) – the most interesting one, the shortest, the one on the top of the pile. Go through it, asking yourself ‚what is this about'?" (Creswell, 2014, S. 198).

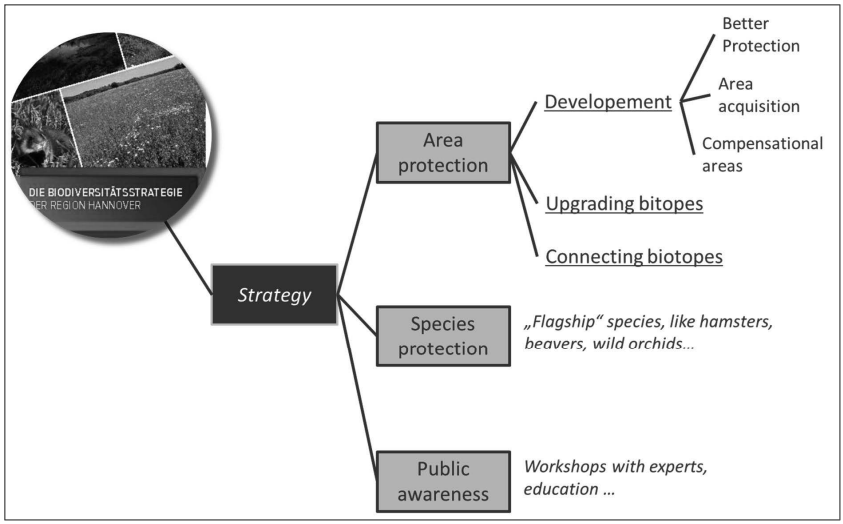
The biodiversity strategy of the Hannover Region was selected for this study. This was published in March 2016 and comprises 78 pages in eight chapters. Typical of the activities of German local authorities, it first establishes a link to the legal framework of the higher levels and also interprets the concept of strategy. The document also establishes a link to the landscape framework plan. In the German legal framework, landscape framework plans ('Landschaftsrahmenpläne') are legally binding and legally defined instruments of German spatial planning. Unlike a biodiversity strategy, the landscape framework plan is therefore a legally clearly defined instrument. At the same time, a glance at this document reveals what it does not contain: Information on budgets and team strength. What can drive improved biodiversity - resources - is therefore not even mentioned in the document itself.

What else stands out when analysing this political document? First of all, that in several places there are calls for the urgent need for systematic change, but the strategy itself focuses on small-scale and practical measures. This is due to the fact that the authors of the strategy paper will be aware that fundamental change is essential in many respects to improve the situation, but that this is difficult to achieve at the smallest state level.

https://doi.org/10.5771/9783957104434-161 https://www.inlibra.com/de/agb - Open Access -

The specific strategic approaches in the paper can be divided into three main areas (see diagram):

– Placing areas and landscapes under protection,
– protecting certain species and
– public awareness.



The attempt to influence public perception can be interpreted as an attempt by the local level to contribute to the aforementioned systemic change. However, it should be critically noted that less information and public awareness of the general population is aimed at and the approaches pursued are more focussed on workshops and work with experts. If the frequency of words is analysed using MaxQDA's Word Cloud tool and then aggregated, it is primarily public institutions and nature conservation associations that are mentioned, rather than agriculture or other target groups such as the general public. This individual finding is consistent with a quantitative study by the KommBio association (Kommunen für die biologische Vielfalt e.V., o.J.). The association members were asked which stakeholders they co-operate with outside their own administration. Other authorities and nature conservation organisations, i.e. other experts, were also primarily mentioned there. The approaches described under Public Awarenesss therefore primarily serve to network nature conservation activities. The local level of the

https://doi.org/10.5771/9783957104434-161 https://www.inlibra.com/de/agb - Open Access - (cc) BY

state attempts to bring together and bundle the activities of various nature conservation groups. At best, measures such as public nature trails attempt to sensitise the (school) public to the topic.

The second strategic approach described in the document relates to the protection of certain animal species. As a rule, these are very distinctive animals that are conspicuous and can also be expected to attract a certain amount of sympathy from people. The specific strategy paper mentions, for example, field hamsters, beavers and certain wild orchids. The selection of certain animal species has a management-based reason: animals can be counted at random and this can be used to prove either that the measures taken have been successful after a few years or that there is an urgent need for political action if, for example, populations continue to decline.

However, the third approach, the protection of existing areas, takes up the most space in the strategy paper. In the case of Hanover, there is a lot of talk about improving the networking of biotopes, enhancing biotopes and developing biotopes.

One of the most difficult tasks is to connect biotopes. Accordingly, this is also one of the objectives of the Federal Ministry for the Environment, which is attempting to improve the networking of existing biotopes at national level with the 'Green Belt' action programme, in order to offer migratory animal species in particular an exchange of the genetic pool and greater spatial availability of food. (Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit, 2015, S. 112)

From a municipal perspective, this issue is difficult because existing biotopes are generally dissected by agricultural land, some of which is used intensively. The municipal level has three options here: It could negotiate compensation measures with farmers to utilise land less intensively. It could buy such areas (there must be a willingness to sell them) and finally it could place them under stronger protection, which is not trivial due to the reservation of ownership under the Basic Law. Each of these measures tends to be politically challenging and legally difficult.

The situation is somewhat simpler when existing biotopes are to be improved. These are often already legally protected and can be biologically enhanced with comparatively simple measures, for example by managing the areas differently (e.g. leaving dead wood in the forest).

The development of protected areas represents the third approach. A popular instrument used by local authorities is that of compensation areas, as interventions in existing natural areas usually have to be offset by compensation measures. This means that the protection of biodiversity already has a legal framework that local authorities can utilise. The purchase of

https://doi.org/10.5771/9783957104434-161 https://www.inlibra.com/de/agb - Open Access -

land, another option for action, is also mentioned in the paper. However, this usually poses a financial problem for many local authorities.

In addition to the measures, attention should also be paid to how the administration justifies its intended approach. In the strategy paper, as in many other policy papers on biodiversity (e.g. the European Union's Biodiversity Strategy (Europäische Kommission, 2020)), the so-called ecosystem services are used as a strong argument. In the justification of the measures, reference is therefore primarily made to humans themselves. Nature is understood as natural capital. This could be particularly critical because it could in turn undermine a systemic change in behaviour.

F. A first assessment: plasters for deep wounds

The disruption of the biosphere in regard to biodiversity loss appears to be far more advanced than the much more frequently discussed climate change.[5] In this respect, the question arises as to whether smaller measures are even sufficient to repair this damage. To use a metaphor: If you have a serious, very deep and very large wound, it is not enough to stick a plaster over it. Looking at the literature, the proposed approaches to improving biodiversity could be described in three different stages: Plaster, Surgery and Salutogenesis. The following table breaks down what is meant by each:

	Plaster	**Surgery**	**Salutogenesis (?)**
Meaning	Stopping the worst problems. Protecting individual species. Protecting individual biotopes. Cleaning rivers, soils,… reducing emissions	More ambitious measures: structural change in agriculture. Structural change in transportation. Structural change in housing etc.	Total transformation of recent ethics and fundamentals of society. Changing the legal character of Nature and animals, rewarding them human rights.
Described in	Numerous policy papers, including in the Hannover Region Biodiversity Strategy (2017)	For the agriculture and food industry, e.g. (Monbiot, 2022).	philosophical works (on law) such as (Nussbaum, 2023) or (Latour, 2018)
To be found in biodiversity strategies?	Yes	No	No

However, the local authorities should not be blamed too much, because even if the finding that they primarily rely on plasters is correct, it should

5 Cf. https://helmholtz-klima.de/planetare-belastungs-grenzen

https://doi.org/10.5771/9783957104434-161 https://www.inlibra.com/de/agb - Open Access - (cc) BY

not be lost sight of the fact that they do not have much more surgical equipment than a first-aid kit at their disposal.

G. Conclusion and outlook

The initial analysis of the municipal strategy papers makes it clear that there are good opportunities to profitably combine municipal efforts with the objectives from Brussels. This is particularly the case if the approaches from Brussels, which are backed by quantified targets, are mirrored at municipal level, which certainly seems to be the case in Germany. In addition, this first study reveals the main axes of the political approach: public awareness, protection of certain species and, above all, protection of certain spatial areas. However, it is also clear that the measures pursued generally do not go beyond the status of 'repair' (described here as 'plasters'). From a political science perspective, further research is required.

The study presented here is merely an exploratory prelude to further action. Specifically, the aim is to analyse political strategies for the protection, conservation or restoration of biodiversity in more detail over the next few years, particularly at the local level. Ideally, this will be done on an interdisciplinary basis in order to capture and analyse the three facets of the concept of policy (policy, politics, polity). The policy level concerns the perspective of biology: What is necessary to protect and improve biodiversity? How are gene pools best protected? The polity dimension asks how legal structures can be created to promote biodiversity through government action. The politics dimension, on the other hand, poses the question of power relations: What power relations need to be changed in order to bring about positive change? How can social and political majorities be organised to achieve this? Who is trying to forge such majorities and with what success or failure? Who is trying to prevent this?

List of References

Bundesministerium für Land- und Forstwirtschaft, Regionen und Wasserwirtschaft. (2023). Veränderung von Insektenpopulationen in Österreich in den letzten 30 Jahren – Ursachen und ausgewählte Beispiele: Kurzfassung.

Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit. (2015). *Nationale Strategie zur biologischen Vielfalt: Kabinettsbeschluss vom 7. November 2007.*

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4a ed.). SAGE Publications.

https://doi.org/10.5771/9783957104434-161 https://www.inlibra.com/de/agb - Open Access -

Europäische Kommission. (2020). *EU-Biodiversitätsstrategie für 2030: Mehr Raum für die Natur in unserem Leben* (Mitteilung der Kommission an das Europäische Parlament, den Rat, den Europäischen Wirtschafts- und Sozialausschuss und den Ausschuss der Regionen COM(2020) 380 final).

Fischer, F. & Oberhansberg, H. (2021). *Über Leben und Natur: Verstehen, was biologische Vielfalt für unser Leben bedeutet* (Sonderausgabe für die Bundeszentrale für politische Bildung). *Schriftenreihe / Bundeszentrale für politische Bildung: Band 10720*. bpb Bundeszentrale für politische Bildung.

Goulson, D. (2023). *Stumme Erde: Warum wir die Insekten retten müssen* (S. Hübner, Übers.) (Ungekürzte Lizensausgabe im Ullstein Taschenbuch). *Ullstein: Bd. 06797*. Ullstein.

IPBES. (2019). *Zusammenfassung für politische Entscheidungsträger des globalen Assessments der biologischen Vielfalt und Ökosystemleistungen der Zwischenstaatlichen Plattform für Biodiversität und Ökosystemleistungen.*

Kommunen für die biologische Vielfalt e.V. (o.J.). *Ergebnispapier Mitgliederbefragung zum kommunalen Naturschutz*. https://kommbio.de/dokumente/ergebnispapier-mitgliederbefragung-zum-kommunalen-naturschutz/

Latour, B. (2018). *Das terrestrische Manifest* (B. Schwibs, Übers.) (1. Deutsche Erstausgabe). Suhrkamp Verlag.

Monbiot, G. (2022). *Neuland: Wie wir die Welt ernähren können, ohne den Planeten zu zerstören* (R. Gravert, Übers.) (1. Auflage). Blessing.

Niedersächsisches Ministerium für Umwelt, Energie und Klimaschutz. (2017). *Niedersächsische Naturschutzstrategie: Ziele, Strategien und prioritäre Aufgaben des Landes Niedersachsen im Naturschutz.*

Nussbaum, M. C. (2023). *Gerechtigkeit für Tiere: Unsere gemeinsame Verantwortung* (M. Weltecke, Übers.). wbg Theiss.

Region Hannover. (2016). *Die Biodiversitätsstrategie der Region Hannover* (Beiträge zur regionalen Entwicklung Nr. 143).

Tekman, M. B., Walther, B. A., Peter, C., Gutow, L. & Bergmann, M. (2022) *Die Auswirkungen von Plastikverschmutzung in den Ozeanen auf marine Arten, die biologische Vielfalt und Ökosysteme.* https://doi.org/10.5281/zenodo.5898684

Weidenmüller, A., Meltzer, A., Neupert, S., Schwarz, A. & Kleineidam, C. (2022). Glyphosate impairs collective thermoregulation in bumblebees. *Science*(376), 1122–1126.

https://doi.org/10.5771/9783957104434-161 https://www.inlibra.com/de/agb - Open Access - (cc) BY