MUSEUM FÜR NATURKUNDE BERLIN

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# Guidelines for Safeguarding Good Scientific Practice and for Dealing with Scientific Misconduct and Principles of Procedure

**Museum für Naturkunde Berlin**
**Leibniz-Institut für Evolutions- und Biodiversitätsforschung**

Disclaimer
This English translation of the MfN Guidelines for Safeguarding Good Scientific Practice is provided for informational purposes. The English text was carefully translated and reviewed for accuracy. In the event that the English and German versions permit different interpretations, the German text shall prevail.

Leibniz Gemeinschaft

# Inhaltsverzeichnis

## Preamble

The basis of valid scientific work is the honesty of scientists towards themselves and others and the honesty in the search for truthful findings. The Museum für Naturkunde - Leibniz Institute for Evolution and Biodiversity Science (Museum für Naturkunde Berlin, MfN) is aware of its responsibility to ensure the norms and standards of good scientific practice and to communicate these to all scientists, especially during the qualification phase. The framework for these standards is set by the Code of the German Research Foundation (DFG) "Guidelines for Safeguarding Good Research Practice".

The Code is addressed to scientists and all other actors in the scientific system who contribute to ensuring scientific integrity, such as journal editors, professional societies, whistleblowers and ombudspersons. This Code of Good Scientific Practice at the MfN is addressed to all scientists of the institution and will be published in an appropriate way by the Director General and the Managing Director (hereinafter also jointly referred to as the Directorate).

## 1. General Principles

The standards of good scientific practice, which are announced in this guideline and are based on the DFG Code of Conduct, are obligatory for all scientists at the MfN as well as for all other actors in the scientific system working at the MfN who contribute to ensuring scientific integrity.

*Guideline 1 Commitment to the General Principles*

Every scientist is responsible for ensuring that their own conduct complies with the standards of good scientific practice.

*Guideline 2 Professional Ethics*

Scientists at the MfN are responsible for adhering to the standards of good scientific practice and have to inform themselves regularly about these standards. Education in the principles of good research begins at the earliest possible stage. Experienced scientists as well as junior scientists support each other in the continuous learning and training process and are in regular exchange. Once a year, the MfN offers a practical seminar on good scientific practice, which is open to all scientists working at the MfN. Participation in this seminar is mandatory for doctoral students.

*Guideline 3: Organizational Responsibility of MfN's Directorate*

The organizational responsibility for the creation of appropriate framework conditions for the implementation of and compliance with the guidelines for good scientific practice lies with the Directorate. The Directorate guarantees the prerequisites for the scientists to comply with legal and ethical standards. The responsibility for communicating, implementing and adhering to good scientific practice lies with the Heads of the respective scientific work units of the MfN, in which the tasks of management, supervision, quality assurance and conflict regulation are clearly assigned and communicated to the respective members and affiliates in an appropriate manner. A structured graduate support system has been established at the MfN for young scientists. Honest career advice and further career paths as well as further training opportunities and mentoring for scientific and research support staff are offered.

Applicants of advertised positions are subject to a formalized applicant management process that is not based solely on scientific merit. To ensure a balanced, non-discriminatory evaluation, the

Women's Representative and the Staff Council are also formally involved in the application process. The MfN is certified according to the audit "berufundfamilie" (work and family), which is concerned with the compatibility of work and family for scientists as well. Personnel development is also subject to the above-mentioned non-discriminatory evaluation and is supported, among other things, by the annual reviews between employees and supervisors. Gender equality and diversity are also taken into account in staff selection and development. The relevant processes are transparent and avoid, as far as possible, unconscious bias.

*Guideline 4: Responsibility of the Heads of Work Units*

The Head of each research work unit bears responsibility for the entire unit. This includes the appropriate supervision of junior academic staff in the preparation and academic evaluation of qualifying papers. Responsible collaboration and performance of leadership responsibilities in working units includes supervision of their members, including junior academic staff, so that all members are aware of their roles, rights, and responsibilities and abuse of power and exploitation of relationships of dependency are prevented.

*Guideline 5: Performance and Assessment Criteria*

The MfN is subject to the evaluation criteria of the Leibniz Association when evaluating its scientists. Originality and quality have priority over quantity as performance and evaluation criteria. Quantitative indicators can only be included in the overall evaluation in a differentiated and reflected manner. Person-specific achievements are queried each year via a museum-internal database (FIS), in which, among other things, publication activity, the extent to which third-party funding is acquired, teaching activities and other achievements such as cross-sectional tasks and committee activities are recorded.

The overarching goals of the MfN, which are agreed upon with the funding bodies in the form of Programmbudgets, are specified for the current year in confidential annual meetings with the respective supervisor. In the annual meeting, the scientists receive performance feedback on work results, commitment, efficiency and social competence during the past period.

*Guideline 6: Ombudspersons*

(1) As a contact point in case of disagreements, suspicions and disputes concerning the standards of good scientific practice, the scientists of the MfN elect two independent ombudspersons who can represent each other. The representation applies in particular in case of concern of bias or in case of being prevented. Even the appearance of prejudice precludes the ombudsperson concerned from taking action. The prejudice rules of the DFG and the Leibniz Association apply. The first contact persons for those seeking advice or making a complaint are the elected ombudspersons of the MfN. If both ombudspersons of the MfN are biased or unable to represent each other, those seeking advice or making a complaint have the right to choose between the central Ombuds Committee of the Leibniz Association and the national German Research Ombudsman of the DFG. The ombudspersons may not be members of the Directorate. The term of office is three years. A single reelection is permissible. The Director General and the Managing Director are responsible for organizing the secret election and are responsible for making the ombudspersons known in an appropriate manner at the MfN.

(2) The ombudspersons shall take action when a suspicion is brought to their attention. The ombudspersons are not an investigative body, i.e. they do not check on their own initiative, actively, for compliance with the standards of good scientific practice at the MfN. However, they can become active in justified cases if they are informed by third parties about a suspicion of scientific misconduct, as far as the suspicion is related to the activity at the MfN.

(3) The ombudspersons advise as neutral and qualified contact persons in questions of good scientific practice and in suspected cases of scientific misconduct and contribute, as far as possible, to solution-oriented conflict mediation. The principles of the ombudspersons' activities are confidentiality, neutrality, fairness and transparency towards the parties involved.

## 2. Research Process – Guidelines for Good Scientific Work

*Guideline 7: Cross-Phase Quality Assurance*

The standards of good scientific practice include working lege artis, i.e., all work steps, research data, and results are fully and comprehensibly documented and are presented together with the publicly available scientific findings (both in publications and in other communication channels).

Likewise, the quality assurance mechanisms used are always outlined, especially when new methods are developed. All protocols and primary data are stored securely and long-term, and subject-specific standards and established methods are adhered to. Continuous, research-related quality assurance also refers to processes such as the calibration of equipment, the collection, processing, and analysis of research data, the selection and use of research software including its development and programming, and the maintenance of laboratory notebooks in all MfN laboratories.

Institutional research data guidelines provide the framework for modern data management. Validity and reproducibility of all results are to be critically and consistently reviewed. Strict honesty with regard to the contributions of collaborators as well as towards third party funders is to be maintained. If scientists have made findings publicly available and subsequently notice discrepancies or errors, they correct them. If the discrepancies or errors justify the withdrawal of a publication, the scientists shall contact as quickly as possible the relevant publisher or infrastructure provider to ensure that the correction or withdrawal takes place and is marked accordingly. The same applies if the scientists are informed of such discrepan¬cies or errors by third parties.

The origin of data, organisms, materials and software used in the research process is dis-closed and the subsequent reuse is documented; the original sources are cited. The nature and scope of research data generated during the research process are described. The handling of such data is designed in accordance with the requirements of the respective subject area. The source code of publicly accessible software must be persistent, citable and documented. Being able to replicate or confirm the results or findings by other scientists (for example, by means of a detailed description of materials and methods) is an essential component of quality assurance.

*Guideline 8: Stakeholders, Responsibilities and Roles*

The roles and responsibilities of the scientists and the research support staff involved in the research project must be clear at each stage during a research project. All participants are in regular exchange about this. They define their roles and responsibilities in an appropriate manner and adjust them as necessary. Adjustments are particularly indicated if the focus of a participant's work in the research project changes.

*Guideline 9: Research Design*

Researchers shall fully consider, carefully research, and acknowledge the current state of research when planning a project. The Director General and the Managing Director ensure that the necessary framework for researching publicly available research outputs is in place. Methods to avoid (unconscious) bias in the interpretation of findings are applied where possible. Researchers consider whether and, if so, how gender and diversity might be significant to the research programme. When interpreting findings, the context in which the research was conducted is taken into consideration.

*Guideline 10: Legal and Ethical Framework, Rights of Use*

The scientists handle their research freedom responsibly. They comply with rights and obligations, especially those arising from legal requirements or contracts with third parties, obtain rights of use, approvals and ethical votes, and thoroughly assess the research consequences and ethical aspects. Scientists are continuously aware of the risk of misuse of research results. Their responsibility is not limited to compliance with legal requirements, but also includes a commitment to use their knowledge, experience, and skills to recognize, assess, and evaluate risks. The Director General and the Managing Director of the MfN are responsible for ensuring that the actions of the employees conform to the rules, and promote this through suitable organizational structures. The staff members develop and use binding principles for research ethics, procedures for the corresponding assessment of research projects and observe national and international regulations in exchange with the responsible authorities and, if applicable, the Leibniz Commission for Research Ethics (Leibniz-KEF).

The scientists of the MfN are aware that the use of data belongs in particular to the scientist who generated them. In the context of research projects, the authorized users decide whether third parties should have access to the data, subject to data protection and funding regulations and, if applicable, the corresponding contractual agreements. The museum generally follows an open science approach, which provides for the most open availability and free reusability of scientific achievements and underlying data possible via recommendations in the MfN's Open Access Guideline. The scientists correctly mark their own and other people's preliminary work.

*Guideline 11: Methods and Standards*

The scientists use scientifically sound and appropriate methods. When developing and applying new methods, they pay attention to quality assurance and the establishment of standards.

*Guideline 12: Documentation*

The scientists of the MfN document all information relevant to the production of a research result as comprehensibly as is necessary and appropriate in the relevant subject area to allow the result to be reviewed and evaluated. Individual results are documented and not discarded from the outset if they do not support the research hypothesis. Selection of results must be avoided. Documentation and research results must not be manipulated and must be protected as best as possible against manipulation.

The principles of the research data guideline of the MfN give highest priority to the comprehensive documentation of research processes and results to guarantee a high degree of transparency, traceability and reusability of the results. If the documentation does not meet these requirements, the limitations and the reasons are clearly explained. The scientists ensure that citations are clear,

and, as far as possible, third parties are allowed access to the information necessary for understanding the research. Where research software is being developed, the source code is documented.

*Guideline 13: Providing Public Access to Research Results*

As a rule, researchers make all results available as part of the scientific discourse. They decide autonomously – with due regard for the conventions of the respective subject area – to what extent there are reasons to deviate from this principle in individual cases and to refrain from making the results publicly available. This decision must not depend on third parties.

For publications, the principle “quality over quantity" applies, i.e., inappropriately small publications should be avoided and results previously made public should be cited. The scientists shall limit the repetition of content of their previous publications and self-citations to the extent necessary for the understanding of the context. In all publications, the intellectual authorship of others is to be respected and all citations and adoptions are to be properly identified.

In the interest of transparency, connectivity of research, and reusability, scientists deposit their research data and principal materials on which a publication is based in recognized, publicly accessible repositories and archives. For this purpose, the MfN operates an institutional repository that follows the FAIR principles (Findable, Accessible, Interoperable, Re-Usable). Self-programmed software is made publicly available with indication of the source code.

*Guideline 14: Authorship*

Authors of an original scientific publication are those who have made a genuine contribution to the content of a scientific text, data or software publication and have approved the final version. The authors bear joint responsibility for the publication, unless explicitly stated otherwise. In particular:

(a) A verifiable, genuine contribution is deemed to exist particularly if a scientist has been involved in a scientifically relevant way in
- the development and conceptual design of the research project, or
- the development, collection, acquisition or provision of data, software or sources, or
- the analysis/evaluation or interpretation of data, sources and the conclusions drawn from them, or
- the drafting of the manuscript.

(b) If a contribution is insufficient to warrant authorship, the individual’s support may be acknowledged in footnotes, a foreword, or an acknowledgement.

(c) So-called honorary authorships are not permissible. The sole provision of infrastructure and/or financial resources, or a leadership or supervisory role alone, does not qualify for authorship.

(d) The order of authorship shall be agreed upon in due time, at the latest when the manuscript is being written, based on comprehensible criteria.

(e) Without sufficient reason, consent to the publication of results may not be withheld. Refusal of consent must be justified by a verifiable criticism of data, methods or results.

*Guideline 15: Publication Organ*

All research contributions must be properly citable by users. The authors decide where and how the research results are made publicly available and strive for open access. They choose the publication medium carefully, and new publication media are examined with regard to their seriousness. The scientific quality of a contribution does not depend on the publication medium in which it is made publicly available. In addition to publications in books and journals, specialized academic repositories, data and software repositories, and blogs are also to be considered. Scientists who assume the function of editors shall also carefully consider for which publication medium they assume this task. A key criterion to selecting a publication medium is whether it has established guidelines for good scientific practice.

*Guideline 16: Confidentiality and Neutrality in Reviews and Consultations*

Scientists who evaluate submitted manuscripts, grant applications or the credentials of individuals, or who are members of scientific advisory and decision-making bodies, shall commit themselves to honest conduct and strict confidentiality. This excludes the disclosure of content to third parties and the own use of this content. They shall disclose all facts that could give rise to concerns of bias.

*Guideline 17: Archiving / Long-Term Retention*

Primary data and research data or research results made publicly available are kept accessible and traceable at the MfN for the long term, but for at least ten years (this time runs from publication of the data) or deposited in cross-site repositories. In case of shortened retention periods, this has to be justified in a comprehensible way. If, in exceptional cases, there are comprehensible reasons for not retaining certain data, the scientists have to explain this. With the MfN's own data repository and cooperation with external partner institutions and service providers, the MfN ensures that the necessary infrastructure is in place to enable this long-term storage. Long-term archiving according to the state of the art is strived for.

## 3. Non-Compliance with Good Scientific Practice, Procedures

*Guideline 18: Whistleblowers and Persons Affected by Allegations*

MfN ombudspersons and investigative commissions reviewing allegations of scientific mis-conduct are committed to protecting both whistleblowers and those affected by the allega¬tions in an appropriate manner. Investigation of allegations of scientific misconduct shall be conducted expressly with due regard for confidentiality - both for the whistleblower and the person(s) affected by the allegations - and for the fundamental principle of the presumption of innocence. The whistleblower's report must be made in good faith and based on objective evidence of a violation of good scientific practice. Deliberately false or wanton allegations may themselves constitute scientific misconduct. If possible, the report should not lead to delays during the qualification of the whistleblower, especially in the case of junior scien¬tists, and the preparation of theses and doctorates should not be disadvantaged. This also applies to working conditions and possible contract extensions. The whistleblower is also to be protected in the case of unproven scientific misconduct, unless it can be proven that the accusations were made against one's better judgment.

*Guideline 19: Procedures in Cases of Alleged Scientific Misconduct*

At MfN, the facts of scientific misconduct, procedural requirements, and measures to be taken when scientific misconduct is identified are defined in appropriate rules and regulations (see Section 4 Facts of Scientific Misconduct, Section 5 Procedures for Conflict Resolution and for Investigation of Allegations of Scientific Misconduct and Section 6 Termination of Proceedings).

## 4. Facts of Scientific Misconduct

Scientific misconduct occurs when (in a scientific context) false statements are made intentionally or through gross negligence, when other people's scientific achievements are appropriated without authorization, or when the research activities of others are impaired. These facts are specified in the following:

(1) Incorrect information shall be deemed to include, in particular:

- a) the invention of data and/or research results,
- b) falsifying data and/or research results, in particular
  - i. by suppressing and/or eliminating data and/or results obtained in the research process without disclosing it,
  - ii. by manipulating a representation or illustration,
  - iii. by incongruent presentation of images and corresponding statements,
- c) providing incorrect information in publication lists, in grant applications or in the context of reporting requirements (including false information about the publication organ and about publications in print),
- d) claiming the (co-)authorship of another person without his or her consent;

(2) Unauthorized appropriation of third-party scientific achievements occurs in particular through:

- a) the unauthorized adoption or other use of passages by third parties without proper and adequate proof of authorship (plagiarism),
- b) the exploitation of research approaches and ideas without consent (especially as a reviewer) ("theft of ideas"),
- c) the unauthorized dissemination of data, theories and findings to third parties or their unauthorized exploitation for own scientific purposes,
- d) the pretention or unsubstantiated assumption of authorship or co-authorship, especially if no genuine, comprehensible contribution to the scientific content of the publication has been made, as well as the denial of a justified co-authorship,
- e) the falsification of the content,
- f) the unauthorized publication or making accessible to third parties as long as the work, findings, hypothesis or research approach has not been legally published;

(3) Impairment of research activities of others occurs in particular through
   a) sabotage of research activities (e.g., by damaging or manipulating experimental setups),
   b) falsification or unauthorized elimination of research data or research documents,
   c) falsification or unauthorized elimination of research data documentation,
   d) inadequate supervision of qualification work (cf. Guideline for Structured Graduate Support of the MfN);

(4) The elimination of original data is considered scientific misconduct if it violates legal regulations or recognized principles of scientific work (see above). This also applies to the unlawful non-elimination of (in particular personal) data;

(5) Violation of confidentiality in the review process through unauthorized dissemination of data, theories, or findings to third parties also constitutes scientific misconduct.

Share of responsibility for misconduct may result from, among other things, participation in the misconduct of others, gross neglect of supervisory duties, or co-authorship of publications containing falsifications.

## 5. Procedures for Conflict Resolution and Investigation of Allegations of Scientific Misconduct

(1) An ombudsperson usually acts upon request (see Guideline 6 (2)).

(2) The investigation of anonymous reports shall be weighed up by the ombudspersons. In principle, an appropriate investigation requires the confidential naming of the whistleblower to the ombudsperson. The facts of the violation of good scientific practice valid for the MfN are defined in section 3 (Non-Compliance with Good Scientific Practice, Procedures) and shall be applied as guidelines.

(3) The ombudspersons shall take appropriate action to protect both the whistleblower and the person affected by the allegations. The name of a whistleblower shall be treated confidentially. Disclosure of the name to the accused person may be necessary in individual cases if he or she cannot otherwise defend himself or herself properly, but should only happen when the whistleblower suffers no disadvantages for his or her own scientific and professional advancement.

(4) The whistleblower's complaint must be made in good faith. Deliberately false or wanton accusations may themselves constitute scientific misconduct.

(5) The ombudspersons confirm that they have received the complaint to the whistleblower within one week of receipt.

(6) If it is not a case of scientific misconduct that has already been committed (e.g. publication of falsified data), but rather advice on how to avoid misconduct or mediation between persons (e.g. supervisor and supervisee), the consultations can be terminated by all parties involved at any time without giving reasons. In the case of mediation, the enforcement and implementation of the solution proposals developed is the responsibility of the conflict parties themselves. The ombudspersons have no authority to take measures to enforce or monitor the agreements reached.

(7) In the event of a suspicion of scientific misconduct, the ombudspersons conduct a preliminary examination. For the purpose of this preliminary examination, at least the accused persons and the whistleblowers shall be heard. Persons who are asked by the ombudspersons for an interview for the purpose of this preliminary examination are obliged to comply with this request in a timely manner (within a maximum of 2 weeks after the request).

(8) Persons concerned and persons providing information shall be given the opportunity to make their statements at every phase of the procedure.

(9) The investigation of allegations of scientific misconduct explicitly respects confidentiality and the fundamental principle of the presumption of innocence.

(10) The ombudspersons may hear other persons and commission external expert opinions. All statements and consultations with an ombudsperson are confidential. Inspection of files is not to be granted in the course of a preliminary examination, not even to the Directorate (unless all parties agree to this).

(11) As a result of the preliminary examination, the ombudsperson responsible for the specific case decides whether to terminate the proceedings or whether it is necessary to set up a committee of investigation. If ombudspersons of the MfN decide in the course of the preliminary examination that an external inquiry into the allegations is necessary, the proceedings may be forwarded to an external body, e.g. the central Ombuds Committee of the Leibniz Association or the German Research Ombudsman of the DFG, in agreement with the MfN's Directorate. All parties involved are informed before an external opinion is sought.

(12) If the action is terminated by the ombudspersons, the parties involved may appeal. The action will then be forwarded directly to the central Ombuds Committee of the Leibniz Association.

(13) If there is a need to appoint an investigating committee, the ombudspersons shall inform the whistleblower, as well as the accused person(s) and MfN's Directorate in writing about the result of the preliminary examination and the reasons for appointing an investigating committee.

(14) Ombudspersons establish an investigative committee to investigate allegations of scientific misconduct in the event that they consider the existence of scientific misconduct to be sufficiently probable or upon decision of the MfN's Directorate.

(15) The investigating committee consists of at least four members, including one or two members of the Scientific Advisory Board of the MfN as well as one additional member who is also qualified to comprehensively understand the scientific facts of the case and who is not an employee of the MfN. Two deputies are appointed. The prejudice rules of the DFG and the Leibniz Association apply. In addition, a fully qualified lawyer shall be appointed to the investigating committee. The committee of inquiry appoints a chairperson and a deputy chairperson from among its members.

(16) One of the ombudspersons is a member of the investigating committee, but without voting rights. All voting members have equal voting rights.

(17) The investigating committee deliberates in non-public and oral proceedings. It agrees on rules of procedure at its first meeting. The members of the investigative committee and the MfN employees involved, as well as all persons involved in or informed about the proceedings, are bound to confidentiality.

(18) The MfN provides organizational support for the work of the investigative committee; in particular, all requested data and documents are to be made available to the investigative committee.

(19) The investigating committee investigates whether scientific misconduct has occurred by freely evaluating the evidence. It hears the accused person(s) and the whistleblower(s) and may also question further persons and commission and consult with expert reviewers.

(20) As a rule, the investigating committee's investigation shall be completed within a period not exceeding six months from its constituent meeting.

(21) The investigating committee may decide to terminate the proceedings.

(22) The investigating committee writes a report that either justifies the termination of the proceedings or states the existence of scientific misconduct. If the investigating committee concludes that scientific misconduct has occurred, i.e., if the majority of its members consider scientific misconduct to be sufficiently proven, the report shall, in particular:

- determine whether such conduct was grossly negligent or intentional; and
- assess the seriousness of the scientific misconduct
- also state what further action the investigating committee recommends (involvement of further institutions and bodies, the initiation of appropriate measures, etc.).

(23) The report is handed over to the parties involved and to MfN's Directorate. The Directorate addresses the report in a timely manner and, if necessary, decides on further measures.

## 6. Termination of Proceedings

(1) Based on the report of the investigating committee on the existence of scientific misconduct, the Directorate decides on the necessary measures or on the termination of the proceedings. The following measures may be taken against the person concerned:

- Written reprimand, warning or further measures under labour law,
- Exclusion from the MfN-internal competition for money from the MfN Innovation Funds and the Leibniz Competition for one to five years (depending on the severity of the scientific misconduct),
- Request to withdraw (an) incriminated publication(s) in whole or in part and to correct incorrect data,
- depending on the severity of the case: disciplinary, labor, civil or criminal consequences.

(2) If, based on the investigating committee's report, MfN' Directorate determines that the scientific misconduct could necessitate the revocation of academic degrees, it shall forward the matter to the awarding university.

(3) The report submitted by the investigating committee as well as the decisions made by the Directorate are conclusive for the proceedings within the MfN in each case.

(4) The key reasons that led to the termination of the proceedings or to the Directorate's decision on measures to be implemented are to be communicated to the person or persons concerned and to any whistleblowers.

(5) The result will be communicated to the affected scientific organizations and, if applicable, to third parties who have a justified interest in the decision, after the investigation has been completed.

(6) MfN's Directorate shall decide on the publication of the decisions and reports of the investigating committee on a case-by-case basis, taking into account the existence of a justified public interest.

*Issued on November 15th, 2021 by the Directorate of the Museum für Naturkunde Berlin*

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| *signed Johannes Vogel* | *signed Stephan Junker* |
| Director General | Managing Director |