



Introduction to CIEEM

The Chartered Institute of Ecology and Environmental Management (CIEEM), as the leading membership organisation supporting professional ecologists and environmental managers in the United Kingdom and Ireland, welcomes the opportunity to comment on this consultation.

CIEEM was established in 1991 and has over 10,000 members drawn from local authorities, government agencies, industry, environmental consultancy, teaching/research, and voluntary environmental organisations. The Chartered Institute has led the way in defining and raising the standards of ecological and environmental management practice with regard to biodiversity protection and enhancement. It promotes knowledge sharing through events and publications, skills development through its comprehensive training and development programme and best practice through the dissemination of technical guidance for the profession and related disciplines.

CIEEM is a member of:

- Wildlife and Countryside Link
- Scottish Environment Link
- Northern Ireland Environment Link
- Wales Environment Link
- Environmental Policy Forum
- IUCN – The World Conservation Union
- Professional Associations Research Network
- Society for the Environment

- United Nations Decade on Biodiversity 2011-2020 Network
- Greener UK
- Irish Forum on Natural Capital (working group member)
- National Biodiversity Forum (Ireland)
- The Environmental Science Association of Ireland

Subject Aims

10. Are the subject aims easy to understand, clear and unambiguous?

Yes No

If no or you wish to give further detail on your views, please explain:

Yes.

Subject content

11. Paragraphs 7 – 12 of the proposed subject content detail the requirements for the study of habitats and wildlife in the UK. Do you agree with these requirements?

Yes No

If no or you wish to give further detail on your views, please explain:

Regarding paragraph 10, we would suggest specifying that at least of the species identified for each habitat type should be an invasive species, ideally one animal and one plant species for each habitat type. Identification of invasive species is a common and significant aspect of ecological work; it is important that students are confident in identifying common invasive species.

12. Paragraph 13 of the proposed subject content details the requirements for the study of human influence on the natural world. Do you agree with these requirements?

Yes No

If no or you wish to give further detail on your views, please explain:

We agree with the inclusion of the requirements listed and wish to expand on some of them, whilst highlighting additional impacts for consideration.

Species introductions

We would suggest including species introductions - both accidental or intentional - as one of the ways humans influence habitats and ecosystems. Accidental introductions can precipitate learning about biosecurity measures, an integral aspect of responsible ecological practice¹. Intentional introductions can be used to discuss the importance of the application of ecological knowledge when making decisions regarding species introductions, a role that may be requested of natural historians or ecologists - for example, when planning reintroductions of previously locally extinct species and/or

planning introductions of species for a particular function, such as biological control (e.g. parasitoid wasps to control crop pests) or ecosystem engineering (e.g. beavers).

Beavers are a prominent, topical example of intentional species reintroduction in the UK². Previously hunted to extinction in the UK, beavers are being reintroduced into the UK as a means of water management, flood prevention and control, and likely future wildfire control. This is a significant example of the role of species as ecosystem engineers, as well as allowing students to explore the social and cultural barriers to species reintroductions, particularly among the agricultural community and opposition to large predator (re)introductions³.

Hunting

Hunting should be included in this section, covering both the negative consequences of overhunting and the use of hunting as a legitimate wildlife control or ecological management tool, and the social, cultural and economic contexts and information used to drive these decisions.

Notable British examples of overhunting leading to local extinction include: beavers in the 16th Century, now deliberately reintroduced; cranes in the 17th Century (also partly due to habitat loss), which have now recolonised due to accidental reintroduction in the 1970s and subsequent conservation efforts⁴.

In terms of hunting as a wildlife control or ecological management tool, deer control is an example of significant contemporary prominence in environmental policy. The issue of deer control can be used to precipitate a discussion on the relative dearth of large predators around the UK, and how and why humans must fill ecological niches⁵.

Pollution

Pollution should be included in this section, including air, water and light pollution. Examples could include:

- Air: the impact of sulphur dioxide and nitrogenous air pollution on lichens and bryophytes (and the use of these groups as indicators of air pollution); grassland species (both flora and fauna)⁶.
- Water: freshwater insects and fish. particularly around intensive agricultural sites the majority of freshwater SSSI features in England and Wales are in unfavourable condition^{6, 7}.
- Light: many effects on both nocturnal and diurnal wildlife⁸.

Regarding bug hotels

There is scant evidence that bug hotels preserve or improve local biodiversity, and may even undermine their aims by contributing to parasitism rates. Furthermore, many commercially available bug hotels have harmful or inappropriate designs (e.g. incorrect hole diameter; rough interior surfaces) and/or are not maintained to benefit target wildlife. If bug hotels are to be included in this section, it should be made clear that more effective alternative actions are available, such as leaving deadwood or stems in situ and providing dense collections of natural materials to be used as overwintering sites^{9, 10}.

Another alternative to bug hotels would be to have students propose design features of urban spaces that could increase local biodiversity (e.g. by creating habitats)¹¹. This would include students considering the design, materials and target taxa for their choices, facilitating learning about habitat niches in urban environments. This would also allow this section of the curriculum to adapt to new evidence, as students would be asked to consider different characteristics of their proposed improvements, rather than learning about one fixed solution.

Bug hotels can be an important engagement tool, particularly in areas with limited green space (including some school grounds). If included in the curriculum, this positive should be highlighted, as long as the concerns above are also raised.

Regarding museum collections

This section of the curriculum should include a discussion about the pros and cons of such collections, as well the colonial history of the practice¹² in order to give students a more comprehensive understanding of the practice's historical role and context.

13. Paragraphs 14 – 20 of the proposed subject content detail the requirements for fieldwork. Do you agree with these requirements?

Yes No

If no or you wish to give further detail on your views, please explain:

Practical fieldwork experience is imperative and we are highly supportive of its inclusion within the content.

Students with additional physical needs must not be excluded from accessing this part of the syllabus and every effort should be made to ensure reasonable adjustments are in place for students to access fieldwork content.

14. Paragraphs 18 and 19 of the proposed subject content set the fieldwork requirement using a metric of ‘hours’, differing from the metrics used in some other GCSE subjects. This is to support schools to structure fieldwork flexibly across the duration of the course, including during regular timetabled lessons, if they wish. Do you agree with using a metric of ‘hours’ for the fieldwork requirement?

Yes No

If no or you wish to give further detail on your views, please explain:

Appendix 1 – Use of mathematics and statistics in natural history

15. Are the proposed range and extent of mathematical and statistical techniques, set out in Appendix 1, easy to understand, clear and unambiguous?

Yes No

If no or you wish to give further detail on your views, please explain:

Appendix 2 – Examples of wildlife typically found for each habitat

16. Appendix 2 provides a list of different types of species within each of the following 6 habitats (Urban, Freshwater, Woodland, Grassland, Farmland and Marine).

The department has proposed this is an advisory list from which awarding organisations can use to create their own, equivalently sized list for each habitat, when writing GCSE specifications. Do you agree the list set out in the subject content should be advisory?

Yes No

If no or you wish to give further detail on your views, please explain:

We believe it is not appropriate for this task to fall to non-expert organisations. Instead, the lists should be provided by - or at the very least approved by - organisations with ecological expertise, such as Natural England, Forestry England or the Environment Agency.

Where species are invasive or naturalised, this should be clearly stated and, in line with our response to question 11, at least one example of an invasive species (as well as of native / non-invasive species) should be provided per habitat. For example, on the indicative list in Appendix 2, Muntjac is listed under Urban - it should be clearly identified as a naturalised, not native, species to the UK.

Similarly, Sycamore is also listed under the Urban section - this is another introduced species, although introduced several hundred years earlier than Muntjac and is now widely naturalised in the UK. The identification of such species as non-native, naturalised or introduced would present an interesting discussion for students, especially considering the varying lengths of time introduced species have been present in UK landscapes and how this relates to their role and perception within habitats and ecosystems.

We note and support the inclusion of lichens in the indicative lists. It should be clearly communicated to students that lichens are colony organisms (consisting of a fungi species living symbiotically with algae or cyanobacteria) to give students a true understanding and appreciation of these organisms.

17. Are the requirements, set out in Appendix 2, easy to understand, clear and unambiguous?

Yes No

If no or you wish to give further detail on your views, please explain:

The requirement for students to “study” species should be clarified in terms of what study refers to: elsewhere in the proposals it states that students should be able to identify relevant species; it is not clear if students also need to know the ecology, lifecycle, distribution or other characteristics of the species, or whether the requirement is simply to identify them.

Appendix 3 – Habitat coverage requirements

18. Appendix 3 provides a list of illustrative options for focus of study for each habitat.

Are the requirements, set out in Appendix 3, easy to understand, clear and unambiguous?

Yes No

If no or you wish to give further detail on your views, please explain:

General

19. Is there anything you would like to feed back that is not covered in the questions above?

Yes No

If yes, please explain:

Equalities

20. Do any of the proposals have the potential to have a disproportionate impact, positive or negative, on specific groups, in particular those who share a 'protected characteristic' (age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex and sexual orientation)?

Yes No

If yes, please explain:

This GCSE is a wonderful opportunity to address diversity challenges within the ecology sector by providing an avenue for underrepresented groups to learn about the sector and gain practical experiences that may otherwise be unavailable to them.

Our sector has one of the least racially diverse workforces in the UK¹³. We hope that the inclusion of natural history in school curricula will go some way to addressing this issue by encouraging students from ethnic minority backgrounds to learn more about and pursue careers in the sector.

Similarly, people from disadvantaged socio-economic backgrounds are also underrepresented in the ecology sector. A lack of access to appropriate education and opportunities to develop practical ecological skills (e.g. economic barriers making volunteer roles less viable) are often significant obstacles preventing people from these backgrounds entering the ecology workforce¹⁴.

This GCSE is a fantastic opportunity to, at least partially, overcome some of these hurdles by giving students whose backgrounds may otherwise exclude them the opportunity to gain relevant knowledge and experience. It is imperative, therefore, that these same hurdles are not present in the pursuit of this qualification. Schools must be given the freedom to adapt relevant aspects of the course (or resourcing to improve access) to ensure any student who wishes to undertake this GCSE can fully engage and benefit from the full range of experiences on offer. It must not be the case that course requirements (e.g. for fieldwork access or equipment) restrict or are perceived to restrict the full participation of students from these backgrounds.

Finally, in line with our response to question 13, specific adjustments should be provided for disabled students, particularly those with mobility or sensory issues. For example, students with visual impairments must be able to access identification knowledge using other senses; for students with mobility issues, school grounds must be an option for fieldwork study, if suitable, accessible alternatives are unavailable.

21. How could the proposed subject content of the GCSE be altered to:

- **better eliminate unlawful discrimination, harassment and victimisation and other conduct prohibited by the Equality Act 2010;**
- **better advance equality of opportunity between persons who share a protected characteristic and those who do not;**
- **better foster good relations between people who share a protected characteristic and those who do not?**

Please provide evidence to support your response.

Highlighting representation can be a significant tool in addressing diversity concerns. We recommend the use of case studies - including the role profiles on the [Green Jobs For Nature website](#) - to demonstrate to students the diversity that does exist in the workforce. Wildlife and Countryside Link's Raven Network may also offer information and contacts to help teachers acknowledge and address racial diversity concerns in particular.

Environmental Principles

22. Do any of the proposals have the potential to have an effect, positive or negative, on:

- the use or management of land in the UK;
- the atmosphere;
- any type of inland, coastal or marine water body;
- wildlife;
- the supply of raw materials from natural sources;
- opportunities for outdoor recreation?

Yes No

If yes, please explain:

References

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<https://cieem.net/wp-content/uploads/2023/06/InPractice112Jun2021.pdf> (Accessed August 2026)

2. Beaver Trust (2025) *Historic first official wild beaver release marks new era for nature's recovery in England*. <https://beavertrust.org/historic-first-official-wild-beaver-release-in-england/> (Accessed August 2026).

3. Knight Frank (2021) *Farmers and conservationists debate UK species reintroduction*. <https://www.knightfrank.co.uk/research/article/2021/6/farmers-and-conservationists-debate-uk-species-reintroduction> (Accessed August 2026).

4. RSPB (2026) *UK's tallest bird, the crane, has record high year*. <https://www.rspb.org.uk/media-centre/cranes-have-record-high-year> (Accessed September 2026).

5. Forestry England (undated) *Managing deer in the nation's forests*. <https://www.forestryengland.uk/article/managing-deer-the-nations-forests> (Accessed August 2026).

6. Burns, F., Mordue, S., al Fulaij, N., Boersch-Supan, P.H., Boswell, J., Boyd, R.J., Bradfer-Lawrence, T., de Ornellas, P., de Palma, A., de Zylva, P., Dennis, E.B., Foster, S., Gilbert, G., Halliwell, L., Hawkins, K., Haysom, K.A., Holland, M.M., Hughes, J., Jackson, A.C., Mancini, F., Mathews, F., McQuatters-Gollop, A., Noble, D.G., O'Brien, D., Pescott, O.L., Purvis, A., Simkin, J., Smith, A., Stanbury, A.J., Villemot, J., Walker, K.J., Walton, P., Webb, T.J., Williams, J., Wilson, R., & Gregory, R.D. (2023). *State of Nature 2023* (State of Nature Partnership) https://stateofnature.org.uk/wp-content/uploads/2023/09/TP25999-State-of-Nature-main-report_2023_FULL-DOC-v12.pdf

7. Environmental Audit Committee (2022). *Water quality in rivers: fourth report of session 2021-22* (House of Commons). Available at: <https://publications.parliament.uk/pa/cm5802/cmselect/cmenvaud/74/report.html>

8. Bruce-White, C. & Shardlow, M. (2011) *A Review of the Impact of Artificial Light on Invertebrates*. (Buglife). https://buglife.b-cdn.net/app/uploads/2019/08/A-Review-of-the-Impact-of-Artificial-Light-on-Invertebrates-docx_0.pdf

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10. The Entomologist Lounge (2017) *Insect Hotels: A Refuge or a Fad?* <https://entomologistlounge.wordpress.com/2017/09/18/insect-hotels-a-refuge-or-a-fad/> (Accessed September 2026).

11. Hane, E.N. & Korfmacher, K.F. (2022) Engaging students in redesigning a local urban space to improve ecosystem services. *Urban Ecosystems*, 25, pp. 719-724
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13. Abbott, L, (2026) *Let's Talk about RACE* (CIEEM). <https://cieem.net/lets-talk-about-race/> (Accessed August 2026).
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