

2024 ICM

Problem F: Reducing Illegal Wildlife Trade



Illegal wildlife trade negatively impacts our environment and threatens global biodiversity. It is estimated to involve up to 26.5 billion US dollars per year and is considered to be the fourth largest of all global illegal trades.^[1] You are to develop a data-driven 5-year project designed to make a notable reduction in illegal wildlife trade. Your goal is to convince a **client** to carry out your project. To do this, you must select both a client and an appropriate project for that client.

Your work should explore the following sub-questions:

- Who is your client? What can that client realistically do? (In other words, your client should have the powers, resources, and interest needed to enact the project you propose.)
- Explain why the project you developed is suitable for this client. What research, from published literature and from your own analyses, supports the selection of your proposed project? Using a data-driven analysis, how will you convince your client that this is a project they should undertake?
- What additional powers and resources will your client need to carry out the project? (Remember to use assumptions, but also ground your work in reality as much as you are able.)
- If the project is carried out what will happen? In other words, what will the measurable impact on illegal wildlife trade be? What analysis did you do to determine this?
- How likely is the project to reach the expected goal? Also, based on a contextualized sensitivity analysis, are there conditions or events that may disproportionately aid or harm the project's ability to reach its goal?

While you could limit your approach to illegal wildlife trade, you may also consider illegal wildlife trade as part of a larger complex system. Specifically, you could consider how other global efforts in other domains, e.g., efforts to curtail other forms of trafficking or efforts to reduce climate change coupled with efforts to curtail illegal wildlife trade, may be part of a complex system. This may create synergistic opportunities for unexpected actors in this domain.

If you choose to leverage a complexity framework in your solution, be sure to justify your choice by discussing the benefits and drawbacks of this modeling decision.

Additionally, your team must submit a 1-page memo with key points for your client, highlighting your 5-year project proposal and why the project is right for them as a client (e.g., access to resources, part of their mandate, aligns with their mission statement, etc.).

The judges will specifically be looking for creativity in the selection of the client and in the selection and justification of appropriate modeling processes used throughout the analysis. They will also be looking for exposition that both (1) establishes strong connections between the client and the proposed project and (2) draws clear and direct ties between the data analysis and the design of the proposed project.

Your PDF solution of no more than 25 pages total should include:

- One-page summary sheet that clearly describes your approach to the problem and your most important conclusions from your analysis in the context of the problem.
- Table of Contents.
- Your complete solution.
- One-page memo to your client.
- Reference List.
- [AI Use Report](#) (if used).

Note: There is no specific required minimum page length for a complete ICM submission. You may use up to 25 total pages for all your solution work and any additional information you want to include (for example: drawings, diagrams, calculations, tables). Partial solutions are accepted. We permit the careful use of AI such as ChatGPT, although it is not necessary to create a solution to this problem. If you choose to utilize a generative AI, you must follow the [COMAP AI use policy](#). This will result in an additional AI use report that you must add to the end of your PDF solution file and does not count toward the 25 total page limit for your solution.

References

[1] Wildlife Conservancy Society. (2021). *Why Should we Care about Wildlife Trafficking?*
Retrieved from <https://wildlifetrade.wcs.org/Wildlife-Trade/Why-should-we-care.aspx>

Glossary

Client: The actor who will be implementing the proposed project. They may be official actors (governmental or quasi-governmental) or unofficial actors (Non-Governmental Organizations).

Illegal Wildlife Trade: smuggling, poaching, and capture or collection of endangered species, protected wildlife, or the derivatives/products of these species

Use of Large Language Models and Generative AI Tools in COMAP Contests

This policy is motivated by the rise of large language models (LLMs) and generative AI assisted technologies. The policy aims to provide greater transparency and guidance to teams, advisors, and judges. This policy applies to all aspects of student work, from research and development of models (including code creation) to the written report. Since these emerging technologies are quickly evolving, COMAP will refine this policy as appropriate.

Teams must be open and honest about all their uses of AI tools. The more transparent a team and its submission are, the more likely it is that their work can be fully trusted, appreciated, and correctly used by others. These disclosures aid in understanding the development of intellectual work and in the proper acknowledgement of contributions. Without open and clear citations and references of the role of AI tools, it is more likely that questionable passages and work could be identified as plagiarism and disqualified.

Solving the problems does not require the use of AI tools, although their responsible use is permitted. COMAP recognizes the value of LLMs and generative AI as productivity tools that can help teams in preparing their submission; to generate initial ideas for a structure, for example, or when summarizing, paraphrasing, language polishing etc. There are many tasks in model development where human creativity and teamwork is essential, and where a reliance on AI tools introduces risks. Therefore, we advise caution when using these technologies for tasks such as model selection and building, assisting in the creation of code, interpreting data and results of models, and drawing scientific conclusions.

It is important to note that LLMs and generative AI have limitations and are unable to replace human creativity and critical thinking. COMAP advises teams to be aware of these risks if they choose to use LLMs:

- **Objectivity:** Previously published content containing racist, sexist, or other biases can arise in LLM-generated text, and some important viewpoints may not be represented.
- **Accuracy:** LLMs can ‘hallucinate’ i.e. generate false content, especially when used outside of their domain or when dealing with complex or ambiguous topics. They can generate content that is linguistically but not scientifically plausible, they can get facts wrong, and they have been shown to generate citations that don’t exist. Some LLMs are only trained on content published before a particular date and therefore present an incomplete picture.
- **Contextual understanding:** LLMs cannot apply human understanding to the context of a piece of text, especially when dealing with idiomatic expressions, sarcasm, humor, or metaphorical language. This can lead to errors or misinterpretations in the generated content.
- **Training data:** LLMs require a large amount of high-quality training data to achieve optimal performance. In some domains or languages, however, such data may not be readily available, thus limiting the usefulness of any output.

Guidance for teams

Teams are required to:

1. **Clearly indicate the use of LLMs or other AI tools in their report**, including which model was used and for what purpose. Please use inline citations and the reference section. Also append the Report on Use of AI (described below) after your 25-page solution.
2. **Verify the accuracy, validity, and appropriateness** of the content and any citations generated by language models and correct any errors or inconsistencies.
3. **Provide citation and references, following guidance provided here.** Double-check citations to ensure they are accurate and are properly referenced.
4. **Be conscious of the potential for plagiarism** since LLMs may reproduce substantial text from other sources. Check the original sources to be sure you are not plagiarizing someone else's work.

**COMAP will take appropriate action
when we identify submissions likely prepared with
undisclosed use of such tools.**

Citation and Referencing Directions

Think carefully about how to document and reference whatever tools the team may choose to use. A variety of style guides are beginning to incorporate policies for the citation and referencing of AI tools. Use inline citations and list all AI tools used in the reference section of your 25-page solution.

Whether or not a team chooses to use AI tools, the main solution report is still limited to 25 pages. If a team chooses to utilize AI, following the end of your report, add a new section titled Report on Use of AI. This new section has no page limit and will not be counted as part of the 25-page solution.

Examples (this is *not* exhaustive – adapt these examples to your situation):

Report on Use of AI

1. OpenAI *ChatGPT* (Nov 5, 2023 version, ChatGPT-4)
Query1: *<insert the exact wording you input into the AI tool>*
Output: *<insert the complete output from the AI tool>*
2. OpenAI *Ernie* (Nov 5, 2023 version, Ernie 4.0)
Query1: *<insert the exact wording of any subsequent input into the AI tool>*
Output: *<insert the complete output from the second query>*
3. Github *CoPilot* (Feb 3, 2024 version)
Query1: *<insert the exact wording you input into the AI tool>*
Output: *<insert the complete output from the AI tool>*
4. Google *Bard* (Feb 2, 2024 version)
Query: *<insert the exact wording of your query>*
Output: *<insert the complete output from the AI tool>*