Supplementary material (1) for "Does citizen science foster conservation? Evidence from wildlife monitoring programmes"

Appendix S1. Details of the categories included in the variables "Type of monitoring scheme", classified according to the level of involvement and responsibility of local participants, "Type of support" provided to participants in monitoring schemes, and "Level of engagement", defined as the degree of participation, dedication, and effort contributed by individuals involved in monitoring initiatives.

Type of monitoring scheme:

Based on the categorization proposed by Danielsen et al. (2008), we classified monitoring schemes into four categories according to the level of involvement and responsibility of local participants:

• **Category 1:** Monitoring schemes driven and executed entirely by external bodies, with data collected solely by professionals. Articles in this category were excluded from the final analysis, as our focus was on monitoring programs involving local volunteers.

• **Category 2:** Monitoring programs driven by external bodies and initiated by professional researchers, but with data collected jointly by local people and professionals.

• **Category 3:** Collaborative monitoring with external data interpretation. These programs may be initiated by either local people or professional researchers, with data collected primarily by local people.

• **Category 4:** Collaborative monitoring with local data interpretation. Monitoring initiatives are usually started and conducted by local people, with professional researchers providing advice on training and project design.

Type of support:

We classified the types of support provided for volunteers into four categories based on Shirk et al. (2012).

• **Material support**: Equipment such as GPS devices, binoculars, field guidebooks, instruction manuals, data collection protocols, training materials, traps, nets, safety gear, sampling kits, data sheets, tool kits, drones, telescopes, cameras, and camera traps.

• **Training:** Capacity-building sessions including basic to intensive workshops, fieldwork instructions, data collection methods, species identification, equipment usage, environmental policies, and accurate data recording techniques.

• **Incentives:** Motivational rewards provided to encourage dedication and effort, such as financial compensation, recognition certificates, feedback or other means of motivation.

• **Supervision:** Guidance and feedback regarding collected data, communication with participants, data quality control, and project management.

Level of engagement:

Level of volunteer engagement can be classified based on level of participation, duration of participation or degree of involvement in the scientific process (Haklay 2013). Based on this, we classified volunteer engagement into three categories (high, medium, and low) based on predefined assessment criteria:

• **High:** Consistent and active participation in monitoring activities, demonstrating strong dedication and time investment in data collection, analysis, and related tasks (e.g., attending training or educational meetings and sharing data). This level significantly contributes to program success through reliable data submission, notable time commitment, and adherence to monitoring protocols. Participants may also be involved in project design, long-term monitoring activities, data analysis, interpretation, and conservation decision-making (Haklay 2013).

• **Medium:** Moderate involvement in monitoring tasks, such as attending training and participating in data validation and interpretation with fair dedication and effort. Participants remain motivated and involved in data collection and processing (Haklay 2013; Seymour and Haklay 2017).

• **Low:** Limited or occasional participation, often due to insufficient time or effort devoted to monitoring activities. Citizen contributing observations with no or minimal training. Volunteers participate in data collection occasionally, but are not involved in analysis or project design (Seymour and Haklay 2017). This typically leads to incomplete or inconsistent data reporting.

References

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