Supporting Information 'Wildlife health perceptions and monitoring practices in globally distributed protected areas'

Methods

Appendix S1. Survey

Use of SMART to record wildlife health information in protected areas around the world

* Indicates required question

1.   **1. Please enter all the name(s) of the protected area(s) that apply.**   *

   If there is more than one protected area(s) name(s), please separate them by
   hitting enter in the answer space below

   _____

   _____

   _____

   _____

   Please read the six statements and mark
   how you feel about them (from "**strongly disagree**" to "**strongly
   agree**").

2. **2. Wildlife health, including infectious and non-infectious diseases, is important to achieve the conservation goals of the protected areas where I work**   *

Mark only one oval.

◯ Strongly disagree

◯ Disagree

◯ Somewhat Disagree

◯ Neutral

◯ Agree

◯ Strongly agree

3. **3. Pathogens carried by wildlife inhabiting the protected area I work in can affect livestock health**   *

Mark only one oval.

◯ Strongly disagree

◯ Disagree

◯ Somewhat Disagree

◯ Neutral

◯ Agree

◯ Strongly agree

4.   **4. Pathogens carried by wildlife inhabiting the protected area I work in can   *
affect public health**

Mark only one oval.

⭘ Strongly disagree

⭘ Disagree

⭘ Somewhat Disagree

⭘ Neutral

⭘ Agree

⭘ Strongly agree

5.   **5. Human or livestock pathogens can affect wildlife populations inhabiting   *
the protected area I work in**

Mark only one oval.

⭘ Strongly disagree

⭘ Disagree

⭘ Somewhat Disagree

⭘ Neutral

⭘ Agree

⭘ Strongly agree

6. **6. Introduced domestic animals (e.g., dogs, cats, cattle, pigs, cats) are a concern for the conservation goals of the protected areas where I work** *

Mark only one oval.

◯ Strongly disagree

◯ Disagree

◯ Somewhat Disagree

◯ Neutral

◯ Agree

◯ Strongly agree

Please mark one of the alternatives provided to answer the following questions based on your experience

7. **7. Are dead wildlife encountered in the protected area?** *

Mark only one oval.

◯ Always

◯ Very frequently

◯ Occasionally

◯ Sometimes

◯ Rarely

◯ Very rarely

◯ Never

8.   **8. Are sick or injured wildlife encountered in the protected area?** *

Mark only one oval.

◯ Always

◯ Very frequently

◯ Occasionally

◯ Sometimes

◯ Rarely

◯ Very rarely

◯ Never

9.   **9. Are livestock encountered in the protected area?** *

Mark only one oval.

◯ Always

◯ Very frequently

◯ Occasionally

◯ Sometimes

◯ Rarely

◯ Very rarely

◯ Never

10.   **10. How long, on average, are the patrols in the protected area?** *

Mark only one oval.

◯ Less than a day

◯ Between one to two days

◯ Between two and five days

◯ Between four days and a week

11.   **11. On average, how many patrols are completed in the protected area in**   *
       one month?

_____

Please respond to the following questions related to data recorded in SMART (e.g., data
collected by ranger patrols, community members, or other users and managed in SMART)

12.   **12. Are healthy wildlife found during patrols (rangers or others) recorded as**   *
       a specific category of individuals?

Mark only one oval.

◯ Yes   *Skip to question 13*

◯ No   *Skip to question 17*

13.   **12.a Please select one of the choices below to help us understand how**   *
       healthy wildlife are recorded during a patrol:

Mark only one oval.

◯ Healthy wildlife are recorded as present/absent (the number of healthy individuals
is not specified)

◯ Healthy wildlife are counted and reported as part of the full count of individuals
belonging to an observed species (e.g. "3 total healthy animals of species X and 2 total
healthy animals of species Y")

◯ Each healthy animal is recorded as an individual observation

◯ Healthy wildlife is recorded in another way

14. **12.b Please indicate what type of data are recorded (check all that apply)** *

Check all that apply.

☐ Photographs
☐ Species
☐ Age
☐ Sex
☐ Body condition
☐ Other

15. **12.c Are these data entered and stored in SMART Desktop?**

Mark only one oval.

◯ All of these items are entered and stored in the corresponding SMART Conservation Area   *Skip to question 17*

◯ Some of these items are entered and stored in the corresponding SMART Conservation Area   *Skip to question 17*

◯ None of these items are recorded in the corresponding SMART Conservation Area *Skip to question 16*

16. **12.c.i If none of the items are recorded in the corresponding SMART Conservation Area where are they recorded?** *

_____

17. **13. Are dead wildlife found during patrols recorded as a specific category of individuals?** *

Mark only one oval.

◯ Yes   *Skip to question 18*

◯ No   *Skip to question 22*

18. **13.a Please select one of the choices below to help us understand how dead** *
     wildlife are recorded during a patrol:

Mark only one oval.

◯ Dead wildlife are recorded as present/absent (the number of dead individuals is not specified)

◯ Dead wildlife are counted and reported as part of the full count of individuals belonging to an observed species (e.g. "3 total dead animals of species X and 2 total dead animals of species Y").

◯ Each dead animal is recorded as an individual observation

◯ Dead wildlife is recorded in another way

19. **13.b Please indicate what type of data are recorded (check all that apply)** *

Check all that apply.

☐ Photographs
☐ Species
☐ Age
☐ Sex
☐ Carcass condition
☐ Anomalies in carcass (if any)
☐ Suspect cause of death
☐ Other

20. **13.c Are these data entered and stored in SMART Desktop?** *

Mark only one oval.

◯ All of these items are entered and stored in the corresponding SMART Conservation Area   *Skip to question 22*

◯ Some of these items are entered and stored in the corresponding SMART Conservation Area   *Skip to question 22*

◯ None of these items are recorded in the corresponding SMART Conservation Area *Skip to question 21*

21. **13.c.i If none of the items are recorded in the corresponding SMART**   *
     Conservation Area where are they recorded?

_____

22. **14. Are injured wildlife found during patrols recorded as a specific category**   *
     of individuals?

Mark only one oval.

◯ Yes

◯ No   *Skip to question 27*

23. **14.a Please select one of the choices below to help us understand how**   *
     injured wildlife are recorded during a patrol:

Mark only one oval.

◯ Injured wildlife are recorded as present/absent (the number of injured individuals is
  not specified)

◯ Injured wildlife are counted and reported as part of the full count of individuals
  belonging to an observed species (e.g. "3 total injured animals of species X and 2 total
  injured animals of species Y").

◯ Each injured animal is recorded as an individual observation

◯ Injured wildlife is recorded in another way

24. **14.b Please indicate what type of data are recorded (check all that apply)** *

Check all that apply.

☐ Photographs
☐ Species
☐ Age
☐ Sex
☐ Anomalies/signs if any
☐ Body condition
☐ Suspect cause of injury
☐ Other

25.   **14.c Are these data entered and stored in SMART Desktop?** *

Mark only one oval.

◯ All of these items are entered and stored in the corresponding SMART
Conservation Area   *Skip to question 27*

◯ Some of these items are entered and stored in the corresponding SMART
Conservation Area   *Skip to question 27*

◯ None of these items are recorded in the corresponding SMART Conservation Area
Skip to question 26

26.   **14.c.i If none of the items are recorded in the corresponding SMART**   *
Conservation Area where are they recorded?

_____

27.   **15. Are sick wildlife found during patrols recorded as a specific category of**   *
individuals?

Mark only one oval.

◯ Yes   *Skip to question 28*

◯ No   *Skip to question 32*

28.   **15.a Please select one of the choices below to help us understand how sick**   *
wildlife are recorded during a patrol:

Mark only one oval.

◯ Sick wildlife are recorded as present/absent (the number of sick individuals is not
specified)

◯ Sick wildlife are counted and reported as part of the full count of individuals
belonging to an observed species (e.g. "3 total sick animals of species X and 2 total sick
animals of species Y").

◯ Each sick animal is recorded as an individual observation

◯ Sick wildlife is recorded in another way

29.   **15.b Please indicate what type of data are recorded (check all that apply)** *

Check all that apply.

☐ Photographs
☐ Species
☐ Age
☐ Sex
☐ Anomalies/signs if any
☐ Body condition
☐ Suspect cause of disease
☐ Other

30.   **15.c Are these data entered and stored in SMART Desktop?** *

Mark only one oval.

◯ All of these items are entered and stored in the corresponding SMART
Conservation Area   *Skip to question 32*

◯ Some of these items are entered and stored in the corresponding SMART
Conservation Area   *Skip to question 32*

◯ None of these items are recorded in the corresponding SMART Conservation Area
Skip to question 31

31.   **15.c.i If none of the items are recorded in the corresponding SMART**   *
Conservation Area where are they recorded?

_____

Please mark "Yes/No" to answer the following
questions

32. **16. Are domestic animals found in the protected area (free-ranging, captive,** *
on a farm)?

Mark only one oval.

◯ Yes   *Skip to question 33*

◯ No   *Skip to question 37*

33. **17. If observed on a patrol, is the presence of domestic animals recorded?** *

Mark only one oval.

◯ Yes   *Skip to question 34*

◯ No   *Skip to question 37*

34. **17.a Are these data entered in SMART Desktop?** *

Mark only one oval.

◯ Yes

◯ No

35. **18. Is the health status of the observed domestic animals recorded (healthy,** *
sick or injured, dead) recorded?

Mark only one oval.

◯ Yes   *Skip to question 36*

◯ No   *Skip to question 37*

36. **18.a Are these data entered in SMART Desktop?** *

Mark only one oval.

◯ Yes

◯ No

37.   **19. Is any other data relevant to wildlife health collected during the patrols?** *

_____

_____

_____

_____

_____

38.   **20. If no data are collected on dead, sick, or injured wildlife, please select**   *
       the best explanation(s) for why this information is not collected (check all
       that apply)

Check all that apply.

☐ Dead, sick or injured wildlife are seldom found

☐ It would add too much work or time to the patrol

☐ Wildlife disease is not relevant in the protected area

☐ Lack of expertise on how to properly record this information

☐ Never thought about it

☐ We use the default SMART data model which does not include sick, dead or injured
wildlife

39.   **21. What version of SMART Desktop is currently used in the protected area?** *

_____

40.   **22. Is SMART Connect available to manage and transfer information**   *
       between SMART Desktop and SMART Mobile?

Mark only one oval.

◯ Yes   *Skip to question 42*

◯ No   *Skip to question 41*

41.   **22.a Are there plans to set up SMART Connect instance and when?** *

_____

42.   **23. Is SMART fully rolled-out in the protected area(s) you work in or is it**   *
       being piloted?

Mark only one oval.

◯ Fully rolled-out

◯ Under pilot

◯ Partially rolled-out

43.   **24. Would you be interested in adding a set of categories and attributes to**   *
       your data model in order to facilitate the collection of wildlife health data
       (morbidity/mortality findings and events)?

Mark only one oval.

◯ Yes

◯ No

44.   **25. Please select the option that best describes your position** *

Mark only one oval.

◯ I am directly responsible for managing SMART data in one or more protected areas

◯ I am a general manager or administrator of one or more protected areas that uses
   SMART data

◯ Other

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Results

Perceptions of wildlife health importance

Appendix S2. Level of agreement (grey scale) among non-local protected area data managers with the statements "Pathogens carried by wildlife inhabiting the protected area(s) where I work in can affect livestock health." (brown), "Pathogens carried by wildlife inhabiting the protected area(s) where I work in can affect human health." (red), "Human or livestock pathogens can affect wildlife populations inhabiting the protected area(s) where I work in." (blue), and "Wildlife health is important to achieve the conservation goals of the protected area(s) where I work," (green).
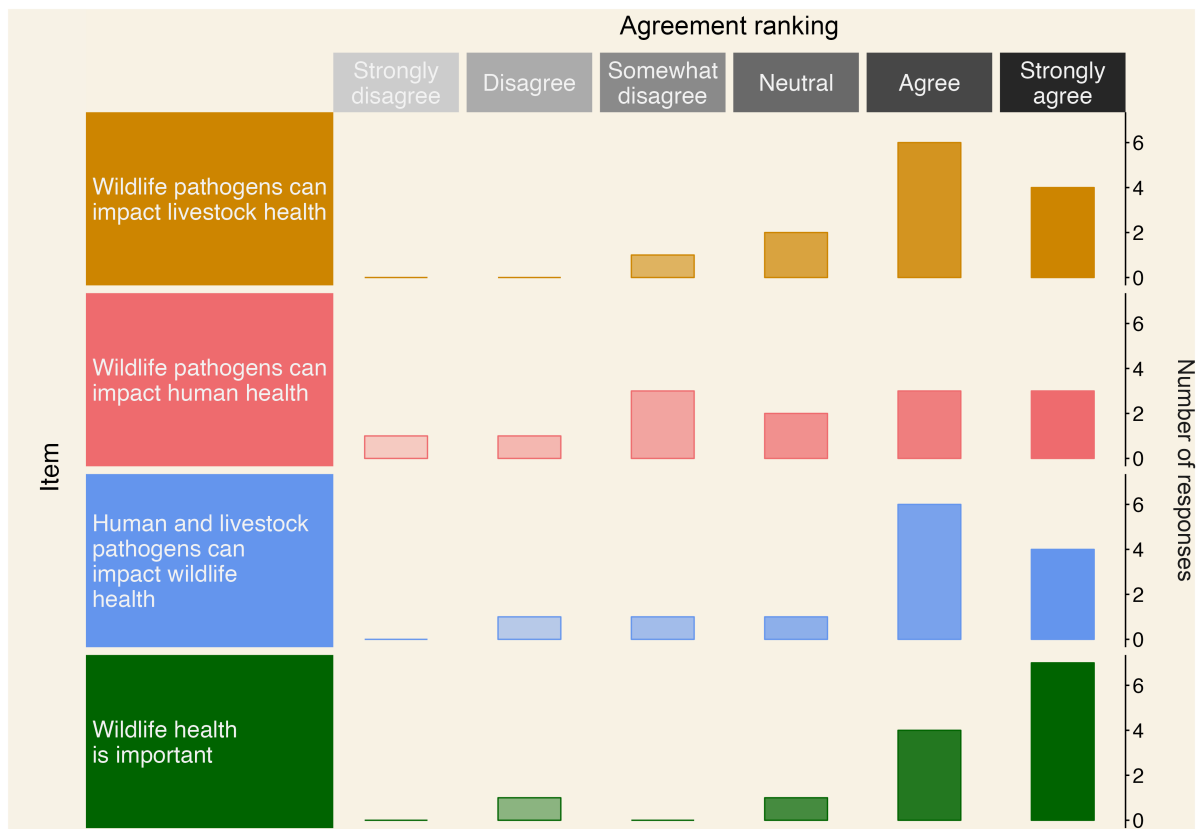
Encounters with injured, sick, or dead wildlife and documentation

Appendix S3. Number of non-local protected area data managers who reported that the health status of and frequency of encounters with wildlife are recorded or not recorded in the protected area they worked in. Green bars represent the proportion of respondents that reported recording of wildlife in each category. Overall frequency of encounters with sick and injured wildlife was requested in a unique question; therefore, rows one and two show the same total number of responses per encounter category.
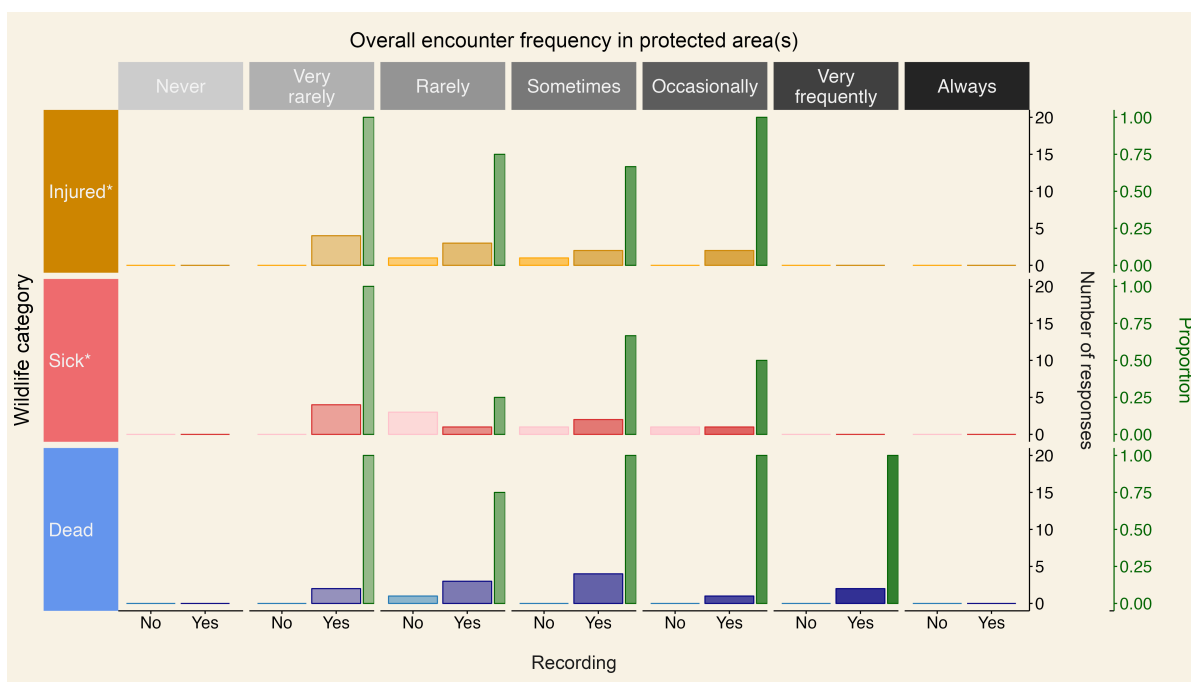
Documentation methods

Appendix S4. Distribution of the methods of documentation (second column) of healthy, sick, injured, or dead wildlife found during ranger patrols as reported by non-local protected area data managers and the recording of specific types of data for each wildlife health status across documentation methods (black line, 50%).
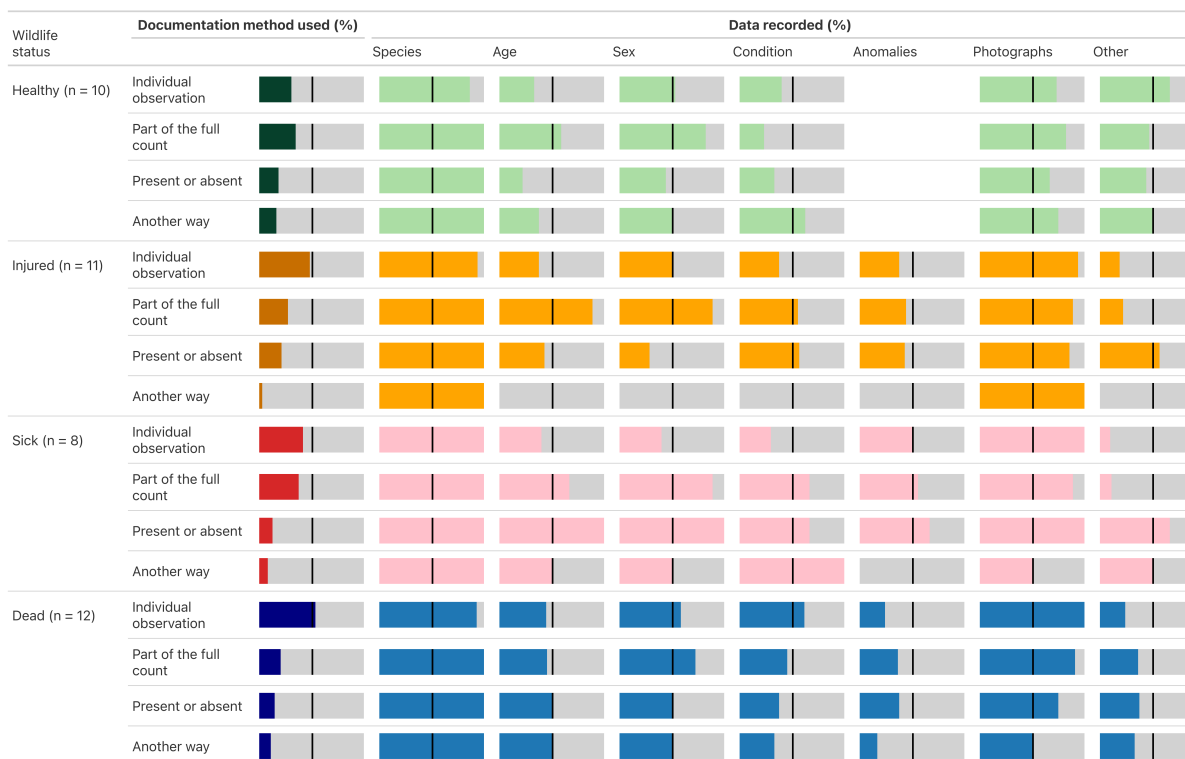
Domestic animals in protected areas

Appendix S5. Responses of non-local protected area data manager to statements that the presence and health of domestic animals in protected areas is a conservation concern (red, no recording of domestic animals; light blue, recording of domestic animals but not their health status; dark blue, recording of domestic animals and their health status). Data are from the group of protected area data managers who reported the presence of domestic animals in the protected area.
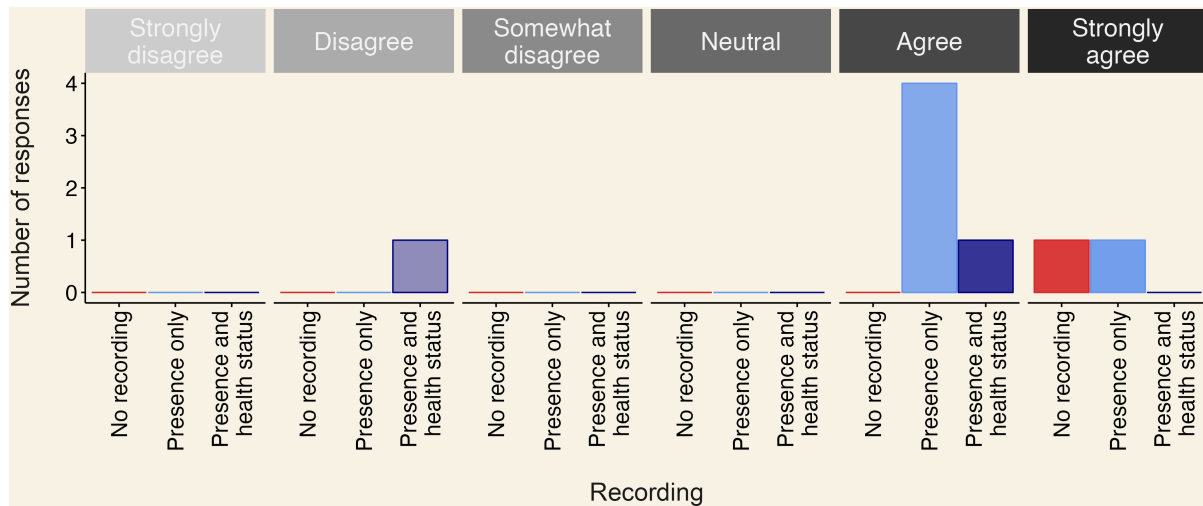
Discussion

Appendix S6. Distribution of protected area data managers responses (local and non-local) across their overall agreement with the statements "Human or livestock pathogens can affect wildlife populations inhabiting the protected area I work in" and "Introduced domestic animals are a concern for the conservation goals of the protected area" for those protected area managers (local and non-local) that reported the absence of domestic animals in the protected area.
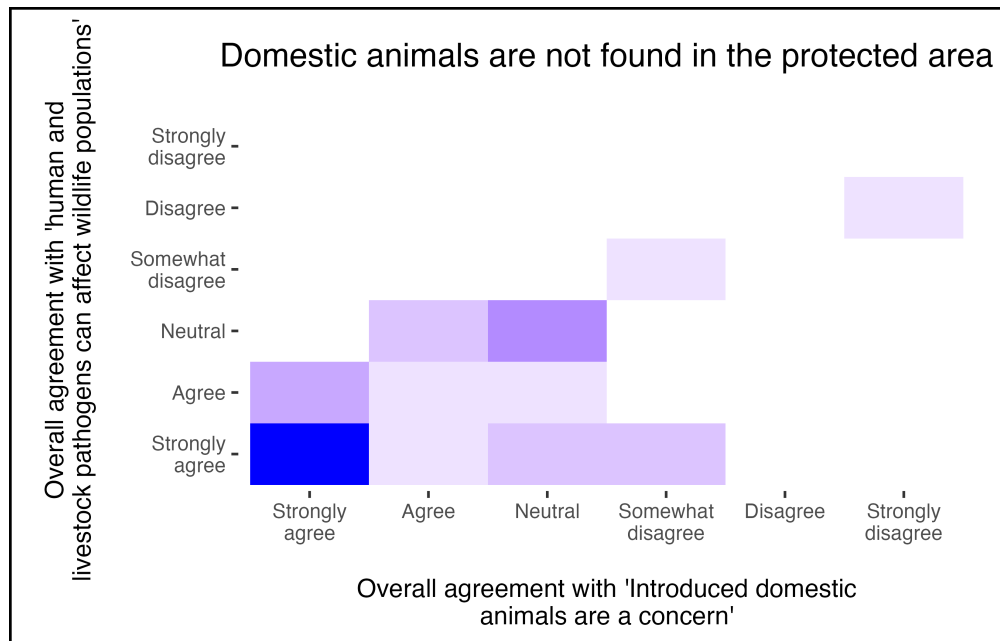
Appendix S7. Distribution of protected area data managers responses (local and non-local) across their overall agreement with "Human or livestock pathogens can affect wildlife populations inhabiting the protected area I work in" and "Introduced domestic animals are a concern for the conservation goals of the protected area" for those protected area data managers that reported the presence of domestic animals in the protected area.