Appendix 1. Interview protocol, survey questions and missing SNA data.

Interview protocol

Network data was acquired through semi-structured, in-depth interviews with the heads or vice-heads of institutions using a questionnaire (see survey questions below). Qualitative data regarding the overall, tie-focused descriptions was collected using a general question: “Do you have professional acquaintance/links with [stakeholder organization named here from table 1]?” If the answer was positive, follow-up questions were asked, allowing interviewees to narrate the content of the interaction: “How would you describe your interaction with this stakeholder? What matters/topics do you discuss when you are in touch?” These questions were asked in general terms, without referring to Pontocaspian biodiversity. After the narrative, a specific question was asked addressing Pontocaspian biodiversity related information exchange: “Do you exchange scientific data, information, knowledge, opinion or advice regarding Pontocaspian biodiversity with this stakeholder organization?” In cases of short or unclear answers, the interviewees were asked to explain the link in more detail and provide examples of interaction. We were particularly interested in Pontocaspian biodiversity, so if the answer to this question was negative, we stopped asking regarding this particular stakeholder, and moved on asking about the next stakeholder organization from the list of identified 22 organizations. Subsequently, the interviewees were asked to rank the strength of the reported Pontocaspian biodiversity related interactions using a table of strength definitions developed as part of the questionnaire (Table A1.1). Once the Pontocaspian biodiversity related relational link was established, its perceived sufficiency was addressed through the question: “Do you consider your contact with this stakeholder sufficient or insufficient to achieve effective collaboration and information exchange?” In case of insufficiency, a follow-up question was asked: “If the contact is insufficient what is the reason you are not in contact more often?” Not all stakeholder institutions were easily reached or willing to answer the interview questions, resulting in some missing data. We used the imputation-by-reconstruction method (Stork and Richards 1992) to deal with missing data (see ‘missing SNA data’ section below for details).

Survey questions

Background

1. Organization name
2. Name of the person interviewed
3. Position of the person interviewed
4. Location
5. Date

Relationships for social network analysis (SNA)

6. Do you have Professional acquaintance/links with [stakeholder organization named here from the list of selected 22 organizations]?
7. How would you describe your interaction with this stakeholder? What matters/topics do you discuss when you are in touch?
8. Do you exchange scientific data, information, knowledge, opinions or advice regarding the Pontocaspian biodiversity with this stakeholder organization?
9. From the table below, how strong would you classify your professional acquaintance/links with this stakeholder?

Table A1.1 Tie strength definitions.

Weight	Strength	Definition
0	Absent	We are never in contact with each other.
1	Very weak	We have been in contact at some point in the past and foresee contact in the future.
2	Weak	We are in contact incidentally, e.g. if we have joint projects or if we need specific knowledge, services, support or expertize from each other. However, the rate of interaction is low and irregular.
3	Strong	We are in contact regularly, on a monthly or quarterly basis.
4	Very Strong	We are in contact very often, on a daily or weekly basis.

10. Do you consider your contact with this stakeholder sufficient or insufficient to achieve effective collaboration and information exchange?
    10a. If the contact is insufficient what is the reason you are not in contact more often?

Missing SNA data

Missing interview data complicates the social network analysis (Monge et al. 1983, Dean Jr and Brass 1985, Prell et al. 2009, Barnes et al. 2016). Ignoring missing values was demonstrated to have considerable negative effects on the structure of the network leading to significant loss of information (Huisman 2009). Huisman (2009) showed that in directed networks with small amounts of missing data (20-30%), reconstruction provides more representative results than ignoring missing values. The reconstruction method assumes the link between a respondent and a non-respondent to be as reported by the respondent (Stork and Richards 1992). Two preconditions have to be met when using the imputation-by-reconstruction method. Firstly, respondents shall be similar to non-respondents. Secondly, the description of the relational links provided by the respondents shall be reliable. The similarity of respondents and non-respondents shall be verified in two ways: in terms of individual level traits (e.g. legal status) and in terms of the number and strength of links they receive (Stork and Richards 1992). The reliability of the responses can be measured through the confirmation rate. Confirmation rate is the proportion of links described similarly by both stakeholders involved. If respondents and non-respondents are similar and the confirmation rate is high, it can be assumed that the respondent's description of the link accurately characterizes the relationship between respondent and non-respondent (Stork and Richards 1992). In this study, 82% of the links was gathered and 18% was missing, therefore below the 20% threshold. Out of the four institutions that could not be interviewed one is academic, one governmental, one non-governmental and one a protected area; therefore non-responding institutions are similar to responding institutions in terms of individual level traits. The confirmation rate was 88% and Chi-squared test revealed no significant differences in the distribution of the weights of received relationships between the respondents and non-respondents (p-value = 0.78). Therefore, the imputation-by-reconstruction method was adopted.

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