Conceptual framework for the literature review

Patricia Howard and the liaison group developed a framework that contains the variables and causal relations of interest, which were derived from a previous meta-analysis of case studies on IAS and IPLC (Howard 2019), as well as the two IPBES ILK dialogue workshops (please see Figure 1 and the list of guiding questions on ILK).
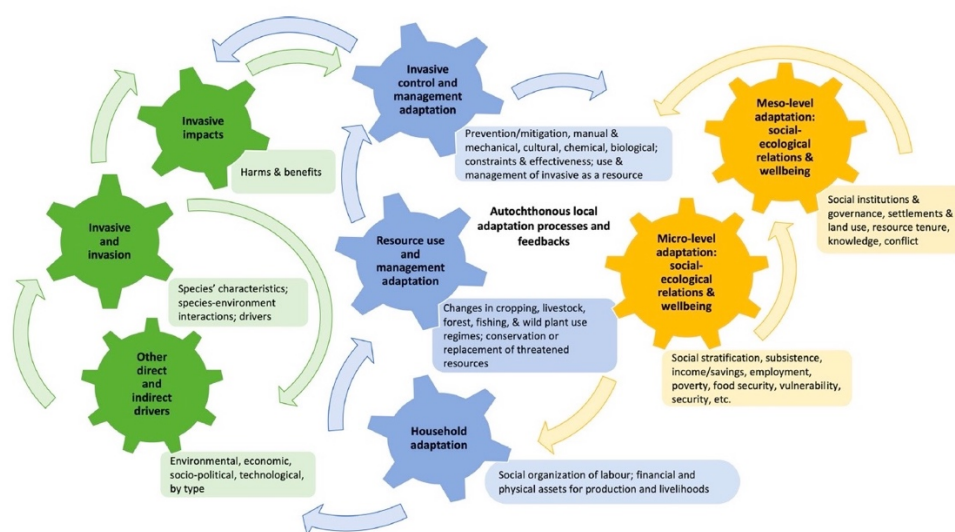

Fig. 1 Component 1. Human adaptation to invasive species conceptual framework. Drivers and spheres. Concepts emerged from the metasynthesis process. Green represents invasion and adaptation drivers, blue represents autochthonous adaptations to invasions, orange represents change in social relations and well-being that result from the invasion, other drivers, adaptation and feedbacks for human well-being. For categories and definitions, see Tables S4–S10

List of ILK questions developed for the first ILK dialogue workshop and used to guide the assessment:

Chapter 1: Conceptualization
a) From the perspective of IPLCs, is there a conception of an "invasive alien species"? Do IPLCs distinguish it from "native species"? How is this expressed?
b) Do IPLCs see some species as having any negative impact on their communities, lands or waters?
c) How do IPLCs obtain information about IAS? Examples of sources could include elders, on-country trips, hunting, fishing and gathering, continued cultural knowledge transfer, participation in citizen science initiatives, schools and education, reports from the younger generation, reports only from outsiders, or others.

Chapter 2: Trends
a) Are IAS increasing/decreasing in IPLC lands and waters?
b) Are IAS changing IPLC lands and waters, or their activities, laws and regulations, perceptions and beliefs, and/or cultural systems? If so, what changes have occurred or are occurring now?

Chapter 3: Drivers
a) What are main causes and drivers of IAS in IPLC lands and waters?

b) With IAS dynamics affected by many drivers (e.g. land use change, natural resource exploitation, climate change, etc.) do IPLCs recognise the main individual drivers of IAS, or are many drivers intertwined, and in what ways?

Chapter 4: Impacts

a) What are the impacts of IAS on IPLC communities, lands, waters?

b) Are there some IAS which IPLCs consider to have greater social and ecological impacts than others? How do they measure this impact? For example, the size of the area impacted, more people talking about it, the degree of common knowledge about IAS, their impact on certain activities including livelihood (hunting, fishing, agriculture), their impact on cultural traditions (specific totems/dreaming/law), involvement with studies, two-way knowledge.

c) When and under what conditions does the arrival of new IAS into the lives of IPLCs change their livelihoods and culture for the better or worse?

d) How and under what conditions do IPLCs incorporate and culturally adopt versus reject new IAS into their communities, in the context of their values or livelihoods?

e) Given all the other pressures on IPLCs (e.g. external population pressure, natural resource exploitation, climate change, etc.) and local ecology (e.g. land use changes, weather events, urbanization, etc.) are IPLCs able to identify the specific impacts of IAS on their community, or is it hard to discern between these and other impacts?

f) Are IAS making some of these other pressures more challenging?

Chapter 5: Prevention, management and adaptation

a) What are the situations in which IPLCs recognise the need to intervene in the context of managing or adapting to IAS?

b) How do IPLCs determine and implement approaches for responding to the impacts of IAS species on your communities, lands and waters?

c) How do IPLCs use their ILK in developing IAS management interventions?

d) What type of management programs do IPLCs think are most effective in their lands and waters, and in their own localities? Do they see any areas where one level of governance can help support the other, and how?

e) Do IPLCs want to collaborate with different knowledge systems to manage the issue of IAS and their impacts (for example two-way approach using ILK and science or other options), or do they want to manage the issue only within their communities?

f) What types of local cultural values do IPLCs use to manage IAS?

Chapter 6: Future options and policy

a) What future directions do IPLCs envision their communities taking with regard to IAS? For example, will IPLCs strive to mitigate these species, to adapt to them, to use them in harmony with other species?

b) How can these opportunities or channels to express the viewpoints of IPLC be improved? How can IPLCs participation be better integrated with national policies?

c) Are international efforts relevant to IPLC needs and ambitions?