Comment #	Reviewer	Comment	Response	Changes
1	R#2	the writing style is still an issue in terms of wordiness. There are many places in the manuscript where a sentence is too long (four or five lines) and convoluted, which makes the rationale hard to follow. Simplicity would help here.	Reduced wordiness and sentences	Sentences > 5 lines reworded and split to ensure wording is not more than 4 lines (not including references).
2	R#2	Line 350 and line 522. Even though the focus of the paper is on the classification and not in the subsequent modelling, the lack of detail on the modelling means that is hard to evaluate if the landscape classification is appropriate or not.	We have provided a brief description of the subsequent modelling, now in its own section (and as suggested in comment #3). In this we also provide the references for the modelling method and application, which the interested reader can readily access. It would go beyond the scope of this paper to discuss the modelling in more detail as it would add several more pages.	We have added further clarifications to improve the linkage between the lanscape classification and the modelling

3	R#2	I believe point 4.1 “Application of the landscape classification based impact assessment” (why not call it Application of the landscape classification to the assessment of ecosystem risk, to match the tittle?) should be included as a separate section and not in the discussion. The discussion should emphasize why this method is considered better than others and how this facilitates the elicitation process.	Moved 4.1 to Section heading 4 and changed Heading as suggested. The reason we developed an ecohydrological landscape classification was because no Australia wide ecohydrological classification exists that is spatially complete. We have clearly identified this in the introduction and the first sentence in the discussion states: "In Australia, there is no consistent national classification that links ecosystems at landscape level with their underlying hydrological system". The first paragraph of the discussion also emphasis why our classification is needed. It implies that there are no other classifications, so there is no "better" or "worse". From the methodological point of view, we used an approach that collated existing data sets for two reasons, 1) these datasets are readily available and cover our areas of interest; 2) it avoids an intensive new data gathering exercise that would include measuring and collating spatially explicit data.	added to discussion second and third para: "We developed this classification based on existing data sets that were readily available in the areas of interest. This is much more resource and time efficient then gathering new data, using for example remote sensing and taking hydrological measurements (see e.g. Gharari et al., 2011; Leibowitz et al., 2014; Sawicz et al., 2014; Zhang et al., 2016; Addicott et al., 2021; Carlier et al., 2021; Jones et al., 2021). The latter would have also required intensive methodology development, and would, in our opinion, not have provided fit-for-purpose information for the expert elicitation process. The advantage of our approach was that it integrated the relationships between water in the landscape and the landscape classes from the multiple dimensions in the input datasets, which allowed experts to develop causal reasoning. This causal relationship would have been much less clear when using dimensionality reduction and classifications such as proximity analysis because such methods do not infer causality without external information." and "Our classification identifies the causal pathways between the water dependency of its components and human activities that result in hydrological changes. Prioritising hydrological features ensures that there is a conceptual linkage between hydrology and landscape classes, as it identifies ecohydrological landscape elements. This was crucial for the experts’ understanding of how hydrological changes impact the landscape. No currently existing ecohydrological classification was suitable to do this, either because

	these were not spatially explicit or they did not cover the landscape completely (Poff et al., 2010; Aquatic Ecosystems Task Group, 2012; Olden et al., 2012). A spatially complete coverage of the landscape is an important prerequisite of the risk analysis because it enables assigning risk levels to the whole landscape, and it allows to identify parts of the landscape where there is insufficient information from the other modelling components. In time critical environmental impact assessments, developing models of different environmental elements often occurs in parallel for those areas where data are available. Where data are unavailable, such modelling is left for future work to feed into improving the risk assessment. In our case, as we had a complete spatial coverage of the landscape, it enables pinpointing which part of the risk modelling inputs needed to prioritise further work. It identified the areas where hydrological modelling needed further refinement because of the lack of gauging stations and knowledge of surface water - groundwater interactions in some of the lowland drainage channels (Figure 9b)."

4	R#2	regarding this last point, a strong discussion linking the classification to the elicitation and the risk assessment may to some extent answer the question from previous reviews about the lack of validation of the methodology.	The question here is how would one validate a methodology? What would one use as a benchmark? Some other (non-existent) classification? Another modelling approach? The development of a classification is not a readily repeatable experiment where one could manipulate parts to identify differences in outcomes and precision. However, a "fit-for-purpose" benchmark would work, if there were other comparable classifications available. Unfortunately, they are not. So the only measure we have is that experts successfully used the classification for assessing impact and we have outlined this in the sections following the results.	see our response to comment # 3

5	R#3	1. Line 289. a) Why is it important to have a spatially complete landscape classification and b) how does the priority of hydrological features contribute to it? c) In the discussion it is mentioned in lines 536 to 542 that there is a category that could not be quantified because of lack of hydrological information, so the spatially complete classification did not guarantee an outcome here.	to a) landscape level assessments consider the whole of the area, and its individual elements, so an assessment of risk can identify areas of concern and those that are not of concern and those that need more work. This is only possible with a spatially complete dataset, ie. where there are no gaps. to b) prioritising hydrological features ensures that there is a conceptual linkage between hydrology and landscape classes. This is different to not having detailed hydrological data on flow (or water quality). At the landscape level the classification identifies where hydrological features sit; it does not need details on flows or waterquality. These are a function of water as the receptor on which human activities impact on. to c) there may be a misunderstanding about risk assessment and prioritisation of risk areas and how this relates to the landscape classification. This statement refers to the risk assessment, not the landscape classification. And here the landscape classification did also provide an outcome: While the classification is spatially complete, the lack of stream hydrological information meant that experts could not assess changes to ecological variables satisfactorily and to a level that would have allowed to assign risk. What it did however was to identify the landscape classes that needed further work before a risk assessment was possible. It identified the areas in the landscape where monitoring and evaluation where of high relevance if mitigation of impacts, or indeed the identification of no risk to the landscape was appropriate.	Adjusted to clarify that a compete landscape classification did provide an outcome for impact assessment. See comment #3 and # 6 for changes

6	R#3	2. Why is vegetation not a classifier in stream upland in Figure 3? Is it because of lack of data or is it because of the conceptual model that will be used later that does not include vegetation?	Because at the landscape level, vegegation is surrounding the streams, and streams are identified as linear features in the landscape. So streams their own landscape class that sit within vegetation landscape classes. This is visible in Figure 6b for example, which shows the stream network. Please also note our discussion points about ecotones in general and riparian vegetation as an ecotone in particular, and how experts incorporated this (Limitations, second para).	Adjusted limitations sections to include how experts dealt with this limitation, second para: "Our classification identifies the causal pathways between the water dependency of its components and human activities that result in hydrological changes. Prioritising hydrological features ensures that there is a conceptual linkage between hydrology and landscape classes, as it identifies ecohydrological landscape elements. This was crucial for the experts' understanding of how hydrological changes impact the landscape. No currently existing ecohydrological classification was suitable to do this, either because these were not spatially explicit or they did not cover the landscape completely (Poff et al., 2010; Aquatic Ecosystems Task Group, 2012; Olden et al., 2012). A spatially complete coverage of the landscape is an important prerequisite of the risk analysis because it enables assigning risk levels to the whole landscape, and it allows to identify parts of the landscape where there is insufficient information from the other modelling components. In time critical environmental impact assessments, developing models of different environmental elements often occurs in parallel for those areas where data are available. Where data are unavailable, such modelling is left for future work to feed into improving the risk assessment. In our case, as we had a complete spatial coverage of the landscape, it enables pinpointing which part of the risk modelling inputs needed to prioritise further work. It identified the areas where hydrological modelling needed further refinement because of the lack of gauging stations and knowledge of surface water -

				groundwater interactions in some of the lowland drainage channels (Figure 9b)."
7	R#3	3. The inclusion of figure 1 is very helpful. Please add some very basic clarification of what is in this paper and what is not, maybe in the caption. Also, the figure refers to	Adjusted	Improved Figure and caption to clarify the focus of this paper. Added definition for hydrological features and elements in caption.

		"hydrological features", "hydrological elements", which have a very specific meaning in the paper (are they the same?) but are not defined before the figure is introduced.		
8	R#3	4. Figure 2 is too big. I suggest splitting it into three figures, one for each region.	Adjusted	Adjusted to 3 figures
9	R#3	5. The discussion includes an application of the classification to the next stages of the risk assessment. It should focus on the classification method itself.	We have changed the structure of the Document and created a new section for the application of the landscape classification. Please see also our response to comment #3.	Adjusted as per comment # 3
10	Ed	Improvement of paper organisation with a more focused discussion.	Adjusted.	Adjusted as per comment # 3
11	Ed	Improvement of some figures and writing style.	Adjusted	Adjusted as per comment # 1
12	Ed	Clearer description of the links between the modelling and the landscape classification scheme	Adjusted	Adjusted as per comment # 3 and # 6