

## ***Interactive comment on “Hydrologic and land-use change influence landscape diversity in the Ebro River (NE Spain)” by A. Cabezas et al.***

### **Anonymous Referee #3**

Received and published: 14 November 2008

**General comments** The manuscript present an interesting study on hydrology and landscape changes in the floodplain of the middle Ebro River since 1926. The abstract is clear and concise, the methodology is relevant and the results very rich. As there are few published data on the middle Ebro, this study provides novel data and could help for comparisons with other river systems. However, prior to publication in HESSD, the manuscript requires several improvements in the presentation and in the text.

**Specific comments** (1) The title does not really reflect the content of the paper. The influence of hydrology and land-use changes on the landscape diversity is not really the central issue. 8220;Hydrologic and landscape changes in the middle Ebro floodplain (NE Spain)8221; would better fit with the content. The authors should adjust the title

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and perhaps include the key word restoration; in the title (if wanted), as in both the abstract, the discussion and the conclusion they insist on restoration issues and consider this historical study as a mean to advise managers for the creation of a dynamic river corridor;. (2) The result section on Landscape analysis (Section 3.2) should be rewritten. Many sentences are not clear and sometimes introduce confusions. Results (Shannon diversity excluded) are actually concentrated on 50 lines only. The corresponding three tables and two figures of results are not progressively presented but with frequent changes from one to the other. This makes the reading very complicated as data are presented for 13 ecotopes over 6 dates and 5 transition periods (later reduced to three).The major difficulty comes from the fact that data concern areas; which are actually presented as percentages; (

Technical corrections

The authors should also improve slightly the presentation of the tables. Firstly, the precision of the data can be reduced to one decimal only in Table 3, 4 and 5. Secondly, the percentages must be clearly explained and standardized, e.g. in table 3 (

In Table 3, put one empty line below Initial, Intermediate and Mature. Add Total Natural Ecotopes (in capital), put Anthropic in capital. On the right side, the totals (100) should be moved on the new line Total Natural Ecotopes.

In Table 4, add 3 new lines for providing the mean

In Table 5, I have great difficulties in understanding the legend. Moreover, is this table really useful if you do not use it in the text ?

Figure 5, is very important and requires specific comments, not just quick references distributed everywhere in the text.

Other remarks: Page 2760, line 16 : patterns

Page 2764, have you checked if the 6 aerial photos were acquired at low water flow, i.e. if water bodies correspond to similar situations?

Page 2765, you can remove the abbreviations CA, PLAND and even SHDI as you don't use them in the text. For the Shannon Index you are using H in the result section and in figure 4, and ED in the discussion section; Line 22, is it apparent or real ?

Page 2767, line 7, remove 'the natural riparian corridor Lines 15-17, actually you are not really using these secondary groups of transition in the text and not at all in the figures and tables. Why not removing it and avoid additional complications (and confusions) in the result presentation? It is well introduced in the discussion section 4.2. page 2771.

Page 2768, line 8, what do you mean by 'emergent vegetation? Line 21, when you consider that there is a decrease in initial and intermediate ecotopes from 1981 to 2003, if you are using Table 3, there is no evidence: on the left side of the table, the decrease is a matter of 1 to 3

Pages 2774 and 2779, Rhode or Rhode ?

Page 2775, line 15, 1926-1957

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 5, 2759, 2008.

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