Reviewer 2

Thanks to her/his review, we added and clarified specific changes.

General comments

This is a very good paper presenting significant results from multiproxy analyses carried out on a long sediment core from Lake Ledro (southern Alps). The sequence covers a time spanning the Lateglacial to early-mid Holocene and provides evidence of pollen-based vegetation changes at high resolution, especially for the Holocene. The spatial expansion of trees species is also traced since the Lateglacial and significant comparisons have been realized between pollen record and other proxies providing information on runoff, soil erosion and lake-level changes. Moreover the analysis of the relations between climate and anthropogenic activities in the Ledro catchment permitted to verify how the environment responded to millennial and centennial-scale climate changes and land-use dynamics. The article is ready to publish, with only a few minor revisions:

i. - the strength of the study is its rich and significant regional-scale documentation. Nonetheless, an article so extensive would be expected to open a debate and discussion even at the extra-regional scale (yet this is not mandatory);

- the article would benefit from the inclusion of some evidence from western and central Europe in the section where the different role of human impact and climatic change are described (add for example reference to: José S. Carrión, Santiago Fernández, Penélope González-Sampériz, Graciela Gil- Romera, Ernestina Badal, Yolanda Carrión-Marco, Lourdes López-Merino, José A. López-Sáez, Elena Fierro, Francesc Burjachs, 2010. Expected trends and surprises in the Lateglacial and Holocene vegetation history of the Iberian Peninsula and Balearic Islands. Review of Palaeobotany and Palynology 162 (2010) 458–475 and Sadori L., Jahns S., Peyron O., 2011. Mid-Holocene vegetation history of the central Mediterranean. The Holocene 21: 117-129).

In our opinion, this paper opens several aims for the scientific community.

1- It asks for studies capable of meeting the three criteria defined in the introduction and to complete the patterns observed in figure 6 (more particularly for Larix and Picea developments).

2- It questions the human impact in the development of beech forests and therefore address the question of changes in climate parameters along the Holocene (wetter summer) driving the change in taxa composition.

Furthermore, the focus of this paper strictly concern the Alps, it is already enough long, so we prefer to avoid extending the discussion to a larger scale.

ii. I agree with many of the general points (4, 5, 6, 10 and 11, 12) reported in the careful and thorough revision performed by Dr. W. Fletcher, as I do with his typographical comments; very few additional general and typographical comments are reported below. The authors have been repeatedly asked to abridge some portion of the manuscript (see also points 22, 26) to avoid redundancy. This would certainly be beneficial to the article. In spite of this, I wish to express my appreciation to the authors for addressing different aspects in a such a comprehensive and updated way.

For all these points, please, see comments and correction in the response to William Fletcher's review.

Additional technical corrections done:

5550_5 change Avegliana to Avigliana
5600_5 change The(in italic) to The
5601_17 change Avegliana to Avigliana