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The Picos de Europa, Northern Spain, an inspiration to non-specialist ecology students to study the Cultural Landscapes of Mountains.

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Every year since 1990 BSc. Outdoor Studies students from St. Martin’s College, UK have been surveying components of the landscape in the Picos de Europa, Northern Spain. The aims are to:

- introduce students to cultural landscapes;
- encourage students to engage with disciplined recording at the landscape level;
- to contribute to the knowledge of the Picos de Europa.

The course has two distinct phases: a group project, where a cohort of fifty work on one large scale landscape project, and individual projects, where students focus on a specific small scale aspect of the landscape.

**Group Project**

The group study employs land classification techniques using environmental data. Students are involved in the process of attr

![Land Class Map](image)

Students map parcels (plate 1) according to General Habitat Categories (GHC), BioHab. Key species are identified and their percentage cover is estimated for each parcel.

**Plate 1 – Example of habitat map.**

Students are taught ecology and combine this knowledge with their outdoor skills to study the mountain area. They use stratified random sampling to collect the data.

**Plate 2 – Mapping Habitats using the GHC.**

Parcels in the landscape. Parcel data is then aggregated and expressed per hectare.

**Plate 3 – Meadow Parcels in the landscape.**

**Plate 4 – General Habitat Category, LHC/GHC herb rich grassland.**

**Plate 5 – Erythronium dens-canis**

**Individual Projects**

- Students choose a diversity of projects according to their personal interests.
- These are often generated by a specific aspect of the group project.
- Individual projects cover a variety of scales:
  - Cultural landscapes e.g. village structures
  - Landscape features e.g. Candelabra trees
  - Habitats e.g. *Quercus ilex* forest
  - Auteology e.g. Butterfly Orchids

**Conclusion**

- These courses are a peak experience for hundreds of undergraduates from St. Martin’s college (Prince, 2005).
- Students learn the discipline of group and individual projects.
- Students do collect meaningful data.
- Students will take the inspiration and pass on to the next generation.
- We have contributed to the knowledge of the region.

**Data Quality**

- Correlation between the mean altitude and the mean decorana score of each Land Class, Picos 2007 Coastal Strip, $r = -0.87$
- Correlation between environmental and habitat data; $r=0.91$, $p=0.01$ (Bunce et al, 2005).

**Figure 1 – Land Class Map**

**Figure 2 – 2003 Meadows Project student data summary**

**Figure 3 – Example of the correlation between mean altitude and habitat data collected by students in 2007.**

**Figure 4 & 5**

**Plate 2**

**Plate 3**

**Plate 4**

**Plate 5**