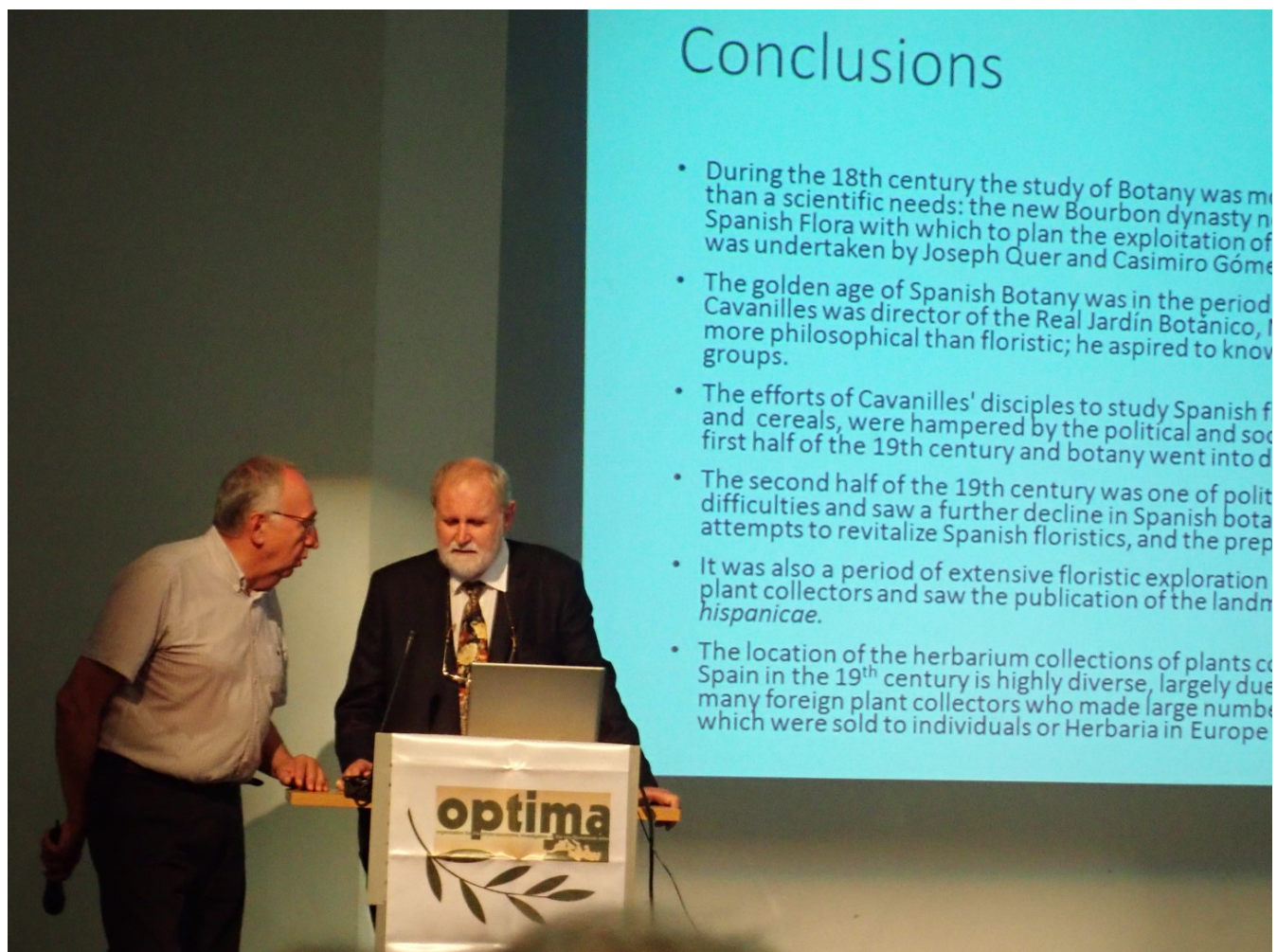


La setmana passada es va celebrar a Atenes la [XVI edició dels col·loquis d'OPTIMA](#) (vegeu [Notícia BioC de 6/10/2019](#)), on diversos membres del BioC i del GReB hi van prendre part activa. Us en presentem algunes imatges i la relació de comunicacions presentades:



Josep M. Montserrat (esquerra) i Werner Greuter (dreta) van presentar conjuntament la comunicació sobre l'exploració botànica a la península ibèrica en nom dels autors, que no van

poder assistir-hi (Foto: C. Blanché)

**XVI OPTIMA Meeting**

## Planning above species level is sometimes better for effective plant conservation

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Protection and management of closely related endangered species and subspecies at very narrow regional scale is the origin of multiple dysfunctional conservation decisions. These include artificially increased IUCN risk assessment categories and derived consequences: poor effectiveness in allocating public and private funds or unnecessary actions/facilities repeat. Data provided by the revisited study of a group of W Mediterranean larks (Delphinium ser. Fisso), including new data on demography, niche modeling, genetic diversity and phylogeography, contributed to a new and wider analysis of causes of threat. Although IUCN Red List regulations currently do not allow to assessments at levels higher than specific rank, scientific information suggests that in some cases this could be a better approach for a sound scientifically-based biodiversity conservation planning and action.

### Genetic diversity and gene flow

Allozymes and cpDNA

**Genetic diversity**  
Relatively low levels. Differential diversification within (up to  $\times 2$ ) and between (up to  $\times 8$ ) taxa.  
Population size effects (N<sub>e</sub> and percentage of vegetative propagation).  
Allele loss due to extinction/peripheral area effects.  
The only species with two cytotypes (D. bolosii) is the most genetically diverse one.

**Gene flow**  
Recent gene flow between most populations very low (mean  $\mu$  value of migration rates  $\approx 0.01$ ).  
However, few population pairs show remarkable recent gene flow (8 of 119 possible pairs show values  $> 0.09$ ).  
Recent discoveries of new plant stands in remote locations not previously known suggest some recent mobility of groups of individuals including intermediate spots connecting previous known populations.  
Genetic similarities between populations from different taxa suggest ancestral connections among populations.

### Niche modeling and niche comparison

**Niche modeling**  
Obtained models finely adjust to real distribution patterns of the three taxa examined.  
Predictive character (biotic) verified by new population discoveries (in Spain, Portugal, France).

**Niche comparison**  
Main influencing factors in explaining distributions through the PCA are precipitation of the drier quarter and precipitation seasonality.  
This pattern may highlight an ecological differentiation among Delphinium taxa being the Iberian populations of D. bolosii and D. fusum subsp. sordidum more adapted to drier climates with a lower water supply than populations of D. fusum subsp. fusum in Alps.  
This fact could be attributed to a four niche divergence scenario, caused by the action of a probable ecological speciation process.

### Conservation issues

Delphinium ser. Fisso includes four taxa, threatened from "CR" to "EN" at country/region level and protected accordingly (similar status to E. fusum subsp. cascyi, a Cyprus endemic evaluated as CR).  
In all cases, danger is mainly reported as a combination of rarity linked to habitat alteration or destruction risks, but no significant biotic, genetic, demographic threats are reported under good habitat conservation.  
The D. fusum group could be regarded as composed by units under incomplete genetic isolation.  
IUCN criteria for risk evaluation (IUCN, 2012, 2017) may not be totally refined for this pattern of diversity but it is a controversial question. At the same time, it seems desirable to preserve phylogenetic diversity also at species/subspecies level, and active evolution processes, as guarantee for future self-sustainable survival, that could be named "terminal clade conservation".

We have a general depiction of the main conservation issues for the ser. Fisso in the W Mediterranean basin as a whole and considering the relevant available scientific information data. However, this approach is not accepted by the IUCN Red List Authority which clearly states that "Assessment of higher taxa (i.e. above the species level) may NOT be included on the IUCN Red List" (IUCN, 2017), a well established principle (certainly recommended for practical reasons) but needed to be open to wider and more plastic interpretations when scientific considerations can be argued (i.e. when gene flow among subpopulations and taxa is inferred, as it is the case).

### Practical recommendations

As only species or infraspecific taxa can be assessed, the following two survival factors remarks can be made from the available data reported both in this poster and in the literature:

- Intrinsic factors:** A noticeable increase of AOD and EOD for each species (and for the whole group) is predicted and should obligatorily improve conservation status for A, B, C or D criteria (IUCN, 2017, Table 2.11), imposing category changes due to better knowledge. The total population for each species is over the threshold for CR or EN categories, and rescue effect of geographically close locations must be accounted for regional assessments. Certain cases, such as D. monanthemum, however, must be maintained in CR category (D criteria) due to the extremely low number of individuals (< 15 adult individuals).
- Extrinsic factors:** Reported documented threats for the four taxa all come from anthropic disturbances determining loss of individuals and decrease both of habitat extent and habitat quality. These include plant collection (ornamentals), fragmentation, outdoor sports effects, overgrazing and flock management, changes in agricultural practices, pesticides, road opening or widening, fires and floods (impacts increasing). Disturbance events should also be reported, including climate change effects. Thus, perception of risk must not be forgotten.

Careful analysis of the 2002 recovery plan of D. fusum subsp. sordidum in Castilla La Mancha.

Needed threat category changes should be adopted in the next future.

Management for each taxon without forget the IUCN recommendation that interactions among sub-units should be carefully considered when planning conservation actions (IUCN, 2017, 7).

New assessments from updated field information (demography, current threats, etc.) will be an excellent opportunity to explore new conservation cooperative approaches between local/regional/national/international administrations.

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La comunicació del BioC sobre conservació en *Delphinium* es va presentar en l'innovador format de "E-Poster", a través de pantalles tàctils (Foto: C. Blanché)





Després d'una comunicació en E-poster sobre *Opuntia auranitica* a la sala de

