

Recommendations for protection and further studies from a large survey of French orchids

Contacts:
 Olivier Hirschy, Daniel Prat*
 Philippe Feldmann
 Société Française d'Orchidophilie,
 Commission scientifique
 17 Quai de la Seine
 F-75019 PARIS, France
 Philippe Feldmann
 CIRAD, TA A-DIR / PS3, F-34398
 Montpellier Cedex 5, France

Daniel Prat*
 Université Claude Bernard -
 Lyon 1, UMR5023
 Ecologie des Hydrosystèmes Naturels et
 Anthropisés,
 6 rue Raphaël Dubois, F-69622
 Villeurbanne Cedex, France
 *: corresponding author:
 daniel.prat@univ-lyon1.fr



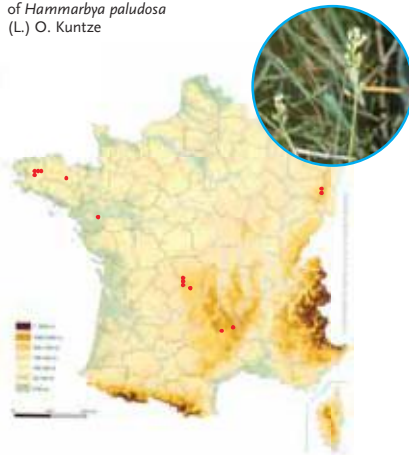
The French Orchid Society (SFO) has been in charge of a large scale and intensive survey of orchid populations throughout the France territory involving more than 3,000 members, botanists and partners. Overall, more than 110,000 stations were referenced and the national ranges of 160 taxa were reported in the Atlas of French orchids (Fig. 1, Dusak and Prat, 2010). These data added to a specific survey of the evolution of the populations were suitable to apply IUCN regional guidelines in order to establish the French Red List of orchid species (IUCN, MNHN, FCBN, SFO, 2009). This remains one of the first applications of IUCN criteria at a regional scale in a plant family. According to their range, population density and demographic trends, when available,

taxa have been investigated and classified within IUCN categorization, revealing that 27 species are threatened (4 as Endangered, EN (Figs. 2, 3) and 23 as Vulnerable, VU ; one additional species being Regionally Extinct), 33 taxa remained as Data Deficient (DD, Fig. 4). Two out of the Endangered and 20 out of the Vulnerable species are protected at the national or local level. Human activities threat many species by habitat destruction and land use change. Species growing in wet areas are thus particularly threatened. This large orchid survey revealed also that our knowledge on orchid population dynamics, population renewal, orchid biology, which are important to conserve them, remains still insufficient.



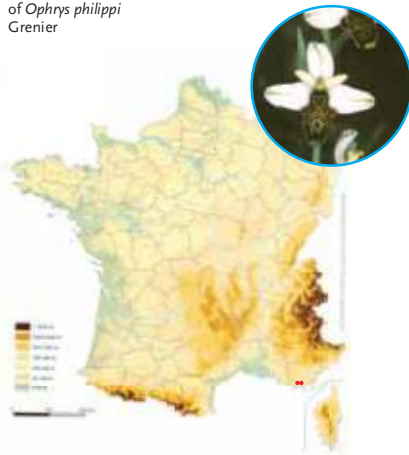
Figure 1
 Cover of the Atlas of French orchids published in 2010

Figure 2
 Distribution and IUCN status in France of *Hammarbya paludosa* (L.) O. Kuntze



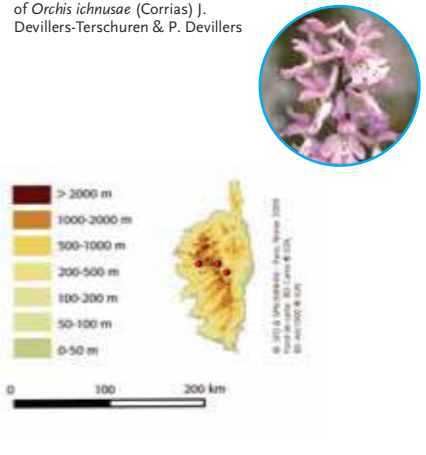
NATIONAL RED LIST CLASSIFICATION	
Category	EN
Criteria	C2a (i)
% World population	<1
National protection	

Figure 3
 Distribution and IUCN status in France of *Ophrys philippi* Grenier



NATIONAL RED LIST CLASSIFICATION	
Category	EN
Criteria	D
% World population	100
No protection	

Figure 4
 Distribution and IUCN status in France of *Orchis ichnusae* (Corrias) J. Devillers-Terschuren & P. Devillers



NATIONAL RED LIST CLASSIFICATION	
Category	DD
Criteria	-
% World population	<1
No protection	

Figure 5
 Distribution and IUCN status in France of *Epipactis fibri* Scappaticci & Robatsch



NATIONAL RED LIST CLASSIFICATION	
Category	NT
Criteria	
% World population	100
No protection	

This large orchid survey and the further IUCN evaluation allow us to draw several recommendations for orchid conservation:

- The regional or national protection status of orchids can now be established using the IUCN evaluation of extinction risks. Patrimonial species (Figs. 3, 5) should be considered carefully.
- Numerous species have been classified into the Data Deficient (DD) category, mostly because of recent taxonomical change or the lack of information during a sufficient period. Within these species, several may be threatened. A specific attention should be paid to assess their population dynamics in order to precise then their IUCN status. Similar investigations should be carried out for species classified as Near Threatened since their extinction risks could be increased by environmental changes.

- We need more information on orchid biology in order to improve our protection efficiency: regeneration, diversity, mating systems, gene flow, longevity... should be investigated. But we have not to wait all the data for protecting them.
- We would like to organize data collection for field observations provided by any contributors through a convivial web site. This should be suitable to continue and precise orchid distribution and get data available for studies on orchid biology.