Monitoring plants at risk for recovery in protected areas: what method for which species, at what frequency?

Patrick Nantel

Species at risk program, Ecological Integrity Branch, Parks Canada, 25 Eddy St., 4th Floor, Hull, QC, Canada, K1A 0M5, < patrick.nantel@pc.gc.ca >, Phone: 819- 953-4781

Different methods exist for monitoring plants, from simple semi-quantitative estimates of species abundance, which is quick and cheap, to demographic studies, which requires tagging a large number of individuals and yearly recording their state. Each method has benefits and weaknesses. Choosing the appropriate one for a given species depends upon the available expertise and resources, but should also be based on the species' biological and ecological characteristics. Because of the large number of species at risk, or potentially at risk, in some protected areas, managers need a set of rules that would determine the priority species and will associate to each an adequate monitoring method and frequency. For these rules to be credible and easily communicated, they need to be as systematic and transparent as possible. I propose two complementary sets of rules. The first set ranks species in five priority classes according to their status in a given protected area. This status is determined by a score computed from six criteria, which can be weighted or not: number of populations, total population size, population trend, area occupied, biogeographical significance, and threats. Every criterion is evaluated using a semi-quantitative scale of 5 values. Then, for each rank, a monitoring method is suggested, from the most detailed one for top priority species, to the simplest one for the less priority species. The second set of rules suggest, for priority species, the monitoring frequency, based on an analysis of their sensitivity to disturbances. This is determined from biological characteristics, such as indicators of fecundity and demographics that are easy to document. The two sets of rules have been modified and fine-tuned by testing and discussing a number of real cases with a panel of managers of Canada's national parks in Québec. The rules proved flexible and made the process transparent and repeatable.