Management of 'at risk' species in protected areas in the age of ecological integrity: On the horns of a dilemma?

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The National Parks Act sets management for ecological integrity (EI) as the first priority. EI is defined there as conditions "characteristic for a natural region, including the composition and abundance of native species and biological communities, rates of change and supporting processes [italics added]". Despite significant challenges, protected area networks need to be designed to maintain and recover native species and natural processes. A role for protected areas as refuges for 'at risk' species has assumed even greater significance with the passage of the Species at Risk Act. However, (1) the natural condition for most species is relative rarity (most reside(d) near the mode of lognormal species-abundance distributions); (2) rare species are at greater risk of extinction due to stochastic natural events (genetic, demographic and environmental); and, so (3) natural systems are often characterized by dynamic equilibria between colonization/speciation and extinction. The dilemma is: how to comply with legislative mandates both to manage for EI (and extinction) and to prevent extinctions. One day natural extinction in protected areas might be considered in the same fashion that fire is now (once considered also to have no place in protected areas), but the phenomenon, its causes and consequences need first to be better understood. Thus, intervention to maintain 'at risk' species in parks may not be appropriate in all cases; instead, parks might be used as natural laboratories to better study population dynamics and their causes. The examples of wolves on Isle Royale, and flying squirrels in Point Pelee, suggest that "letting nature take its course", and/or experimenting with, 'at risk' species in protected areas may not, in fact, pose a significant risk of extinction, and might improve the reliability of knowledge upon which conservation policy is founded. Perceived risk of extinction might be further ameliorated, however, by ensuring sufficient protected areas, sufficiently connected, that not all of the "eggs are in too few baskets".