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We evaluated the usefulness of microsatellites and recently developed statistical methods for the conservation management of fragmented and reintroduced populations, using the alpine ibex (Capra ibex) as a model species. First, we assessed the effects of past reintroduction programmes on genetic diversity and population differentiation considering different population sizes and histories. We show that genetic variability in ibex populations (HE ≈ 0.13) is among the lowest reported from microsatellites in mammal species, and that the Alpi Marittime–Mercantour population has suffered from a severe genetic bottleneck associated with its reintroduction. Second, using a computer-simulation approach, we provide examples and rough guidelines for translocation programmes concerning the number and origin of individuals for future reintroductions and for the reinforcement of populations with low genetic variability. Finally, we use the ibex microsatellite data to assess the usefulness of several published statistical tests for detecting population bottlenecks and assigning individuals to their population of origin. This study illustrates that microsatellites allow: (i) evaluation of alternative translocation scenarios by simulating different numbers and origins of 'migrants'; (ii) identification of bottlenecked populations (especially using the Wilcoxon signed-ranks test); and (iii) population assignment with a high certainty ($P < 0.001$) of almost 100% of the individuals (or trophies or carcasses) from two distant populations (especially using stucture or whichrun software).

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