CHAPTER 18 Answers to Problems

Problem 18.3. There are both legal and social reasons why this may be true. If all of the wild individuals are brought into captivity, then the natural habitat may no longer be legally protected. Socially, captive breeding is sometimes seen as successfully preserving a species so that its natural habitat is no longer needed. The senior author of this book once heard a person say on the banks of the Yampa River in Colorado that they could not understand why the endangered fish in the river were still protected when there were thousands of each species being raised in hatcheries.

Problem 18.4. We would like to minimize genetic change in captivity. Genetic drift can be minimized by increasing effective population size. However, natural selection is more effective with large $N_{e;}$ therefore, we would expect more rapid adaptation to captivity in a population with very large N_e. See Section 18.5.3 and Figure 18.4.

Problem 18.5. (1) Identify appropriate populations as founders for captive breeding.

(2) Determine the relationship among individuals. For example, genotypic similarity at many markers may be used to determine if two or more founders are related (e.g., full-sibs). Once in captivity, genotypic similarity can be used to verify the pedigree.

(3) Molecular markers can be used to identify individuals who have particular alleles at loci that have strong adaptive significance (e.g., MHC)