**CHAPTER 14  Answers to Problems**

**Problem 14.1.**  There is very useful software (*Genetic Analysis in Excel, GenAlEx*) available that will help you identify recaptures with these data.  You can download this program from the following site:

http://www.anu.edu.au/BoZo/GenAlEx/genalex_download.php

You can then use the **humpback genotypes GenAlEx** data file on the book web page with this program.  Use the **Multilocus** menu tab and the **Matches** sub option.

**Problem 14.2.**  The proportion of diploids that will be male is the expected number of homozygotes.  With $A=20$, the frequency of each homozygote will be $(1/A)^2$ and there will be $A$ homozygous classes:

$$(\frac{1}{20})^2 (20) = 0.05$$

Therefore, 5% of the diploids will be male.

In general,

$$(\frac{1}{A})^2 (A) = \frac{1}{A}$$

Therefore, 10% of the diploids will be male with 10 alleles, and 20% of the diploids will be male with 5 alleles.

**Problem 14.5.**  This is a question at the interface of biology and policy.  Biologically, the timeframe is best measured in generations.  However, use of generations in policies such as those in Table 14.1 would be confusing, especially because it requires knowledge of the generation interval for a species or populations.  Therefore, it makes sense to use years in setting policies to define population viability.