



FIGURE 28.11. Adaptive dynamics is a method for analyzing evolutionary models. This example represents the evolution of an asexual population, which varies in some continuous trait x . At low density, individuals have highest fitness if they are close to $x = 0$ (blue curve). Initially, the population consists of poorly adapted individuals with trait value $x = 2$ (bottom right). New alleles are introduced by mutation and differ slightly from the resident type. They can invade if they bring the phenotype closer to the optimum at $x = 0$. The black dots show how each successive mutation brings the phenotype closer to the optimum. Because mutations are assumed to be similar to the resident population and to substitute one by one, adaptation is slow: This diagram shows the outcome of more than 10^4 trial mutations.