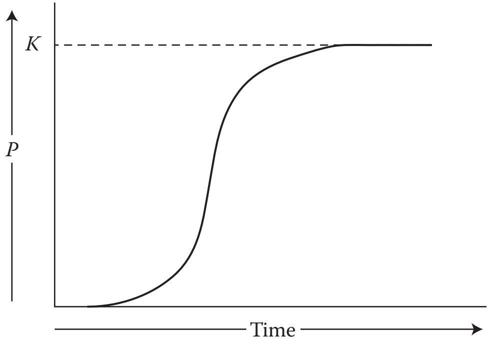

Figure 2.1
Sigmoid curve.

002x001.eps

Courtesy of CRC Press/Taylor & Francis Group

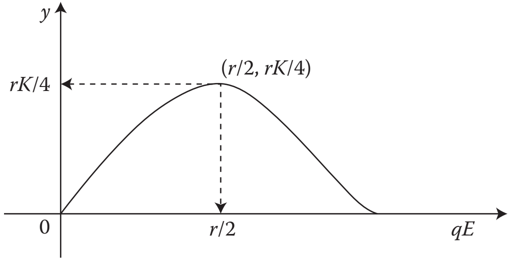

Figure 2.2
Yield curve. (From Kot, M. *Elements of Mathematical Ecology*. Cambridge University Press, Cambridge, UK, 2001. With permission.)

002x002.eps

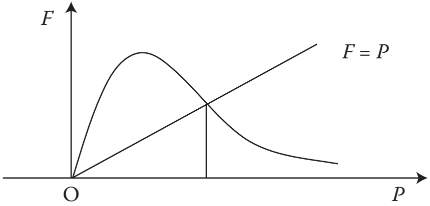

Figure 2.3
Population in nonoverlapping genereations.

002x003.eps

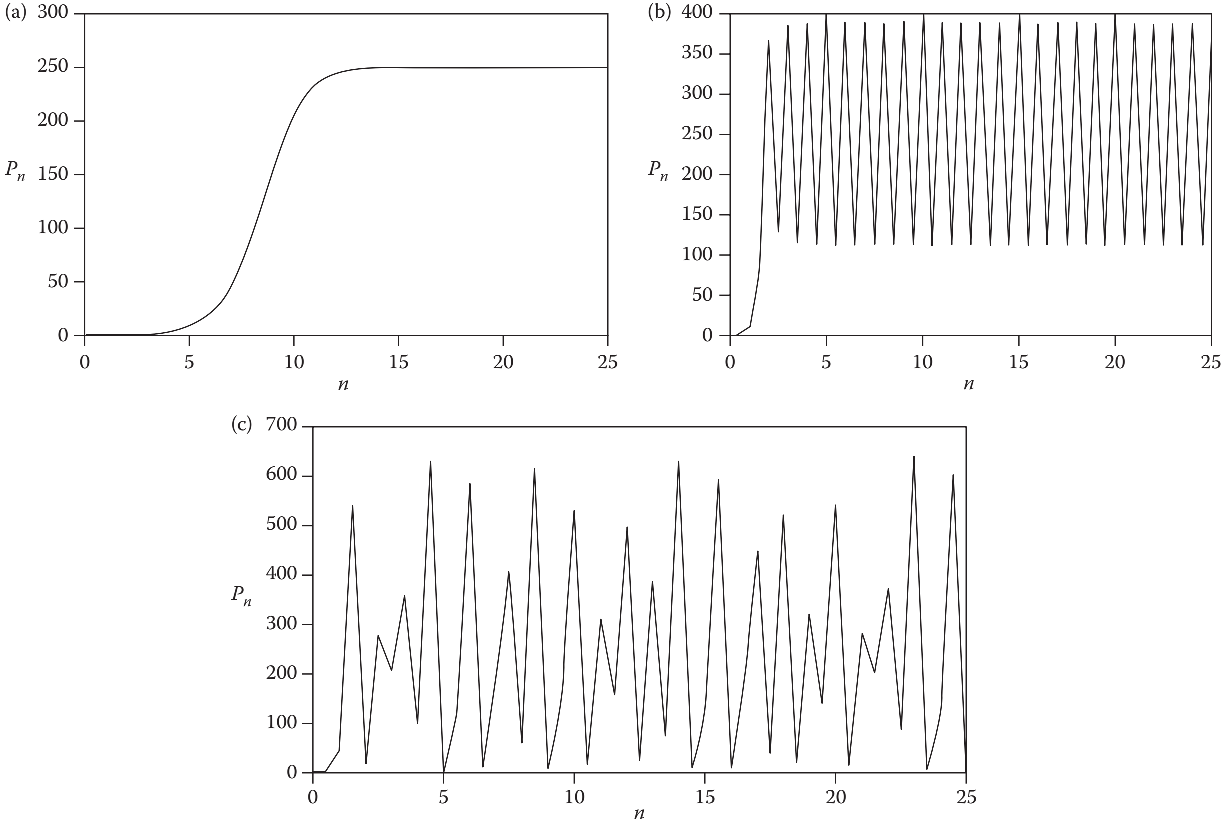

Figure 2.4
(a)–(c) Plots of population dynamics in Ricker model.

002x004.eps

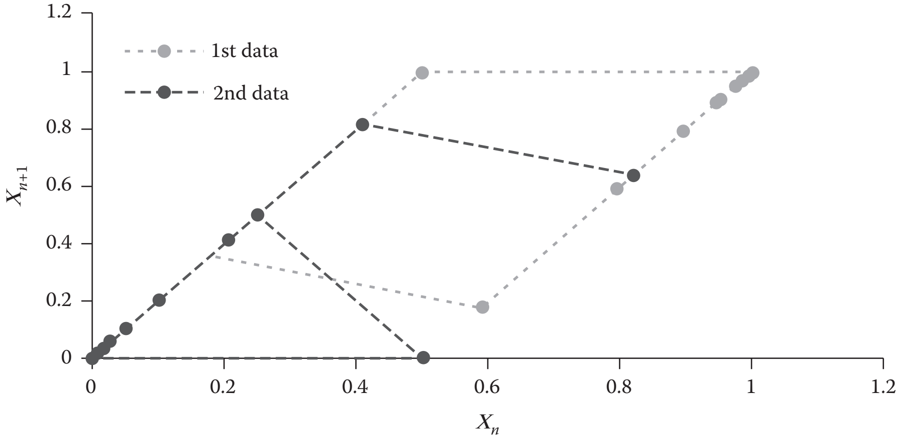

Figure 2.5
Map of Equation 2.33 for $k = 2$. First data are given in (i) and second data are given in (ii).

002x005.eps

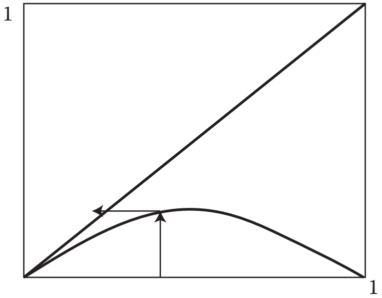

Figure 2.6
Stable equilibrium point. $A = 0.8$ (Not to scale.)

002x006.eps

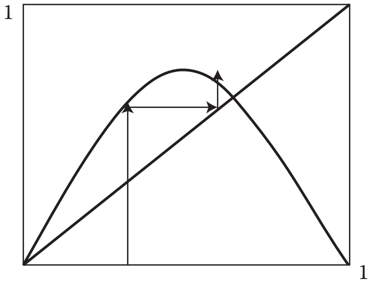

Figure 2.7
Stable equilibrium point. $A = 3.0$ (Not to scale.)

002x007.eps

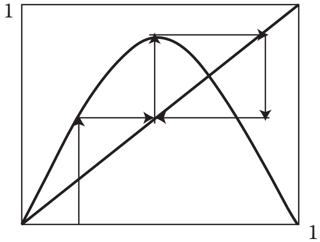

Figure 2.8
Stable equilibrium point. $A = 3.2$ (Not to scale.)

Figure 2.9
The design of the dress was based on the bifurcation diagram of the logistic map $x_{n+1} = ax_n(1 - x_n)$. (Courtesy Eri Matsui, Keiko Kimoto, and Kazuyuki Aihara [Kazuyuki Aihara, private communication].)

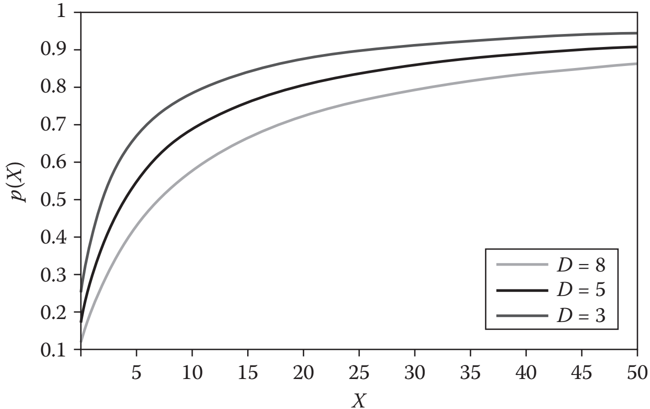

Figure 2.10
Holling type II functional response plotted for different values of $D = 3$, 5, and 8.

002x010.eps

Courtesy of CRC Press/Taylor & Francis Group

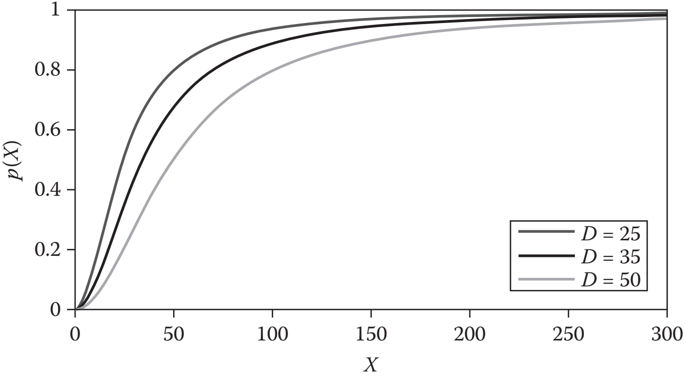

Figure 2.11
Holling type III functional response plotted for different values of *D*.

002x011.eps

Courtesy of CRC Press/Taylor & Francis Group

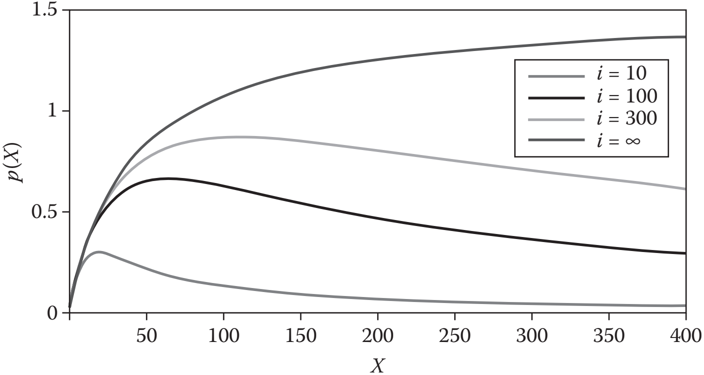

Figure 2.12
Holling type IV functional response plotted for fixed values of $c = 1.4$, $a = 40$ and different values of $i = 10$, 100, 300, and ∞.

002x012.eps

Courtesy of CRC Press/Taylor & Francis Group

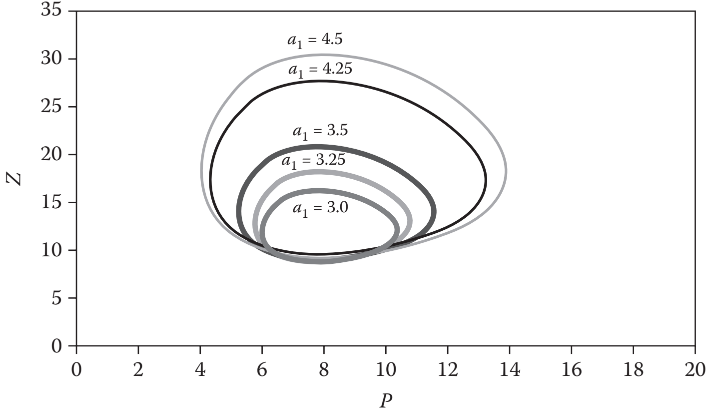

Figure 2.13
Closed (P, Z) phase plane trajectories for the LV model for different values of the parameter $a_1 = 4.5$, 4.25, 3.5, 3.25, and 3.0.

002x013.eps

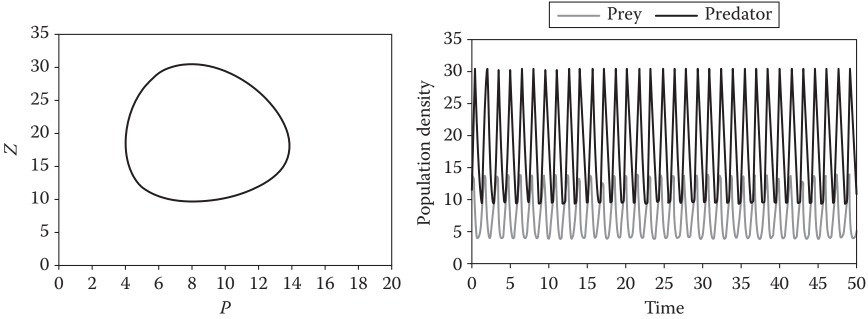

Figure 2.14
Phase plane trajectory and the corresponding time series for the LV model for the parameter values $a_1 = 4.5$, $b_1 = 0.25$, $a_2 = 4.0$, $b_2 = 0.5$.

002x014.eps

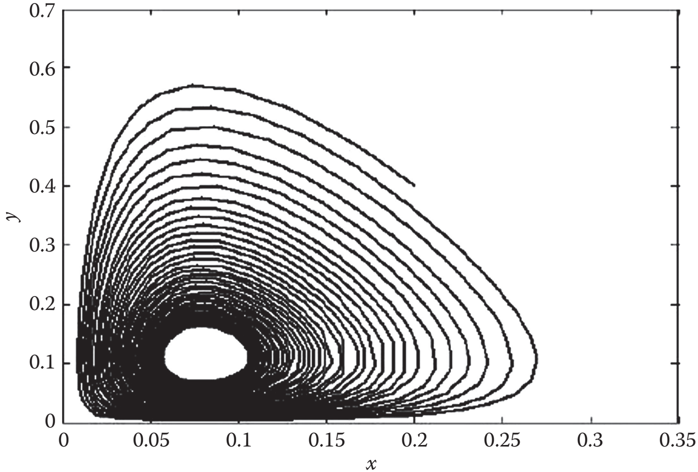

Figure 2.15
A limit cycle of system (2.56) for $a = 1$, $c = 3$, $d = 2$, $\alpha = 2$.

002x015.eps

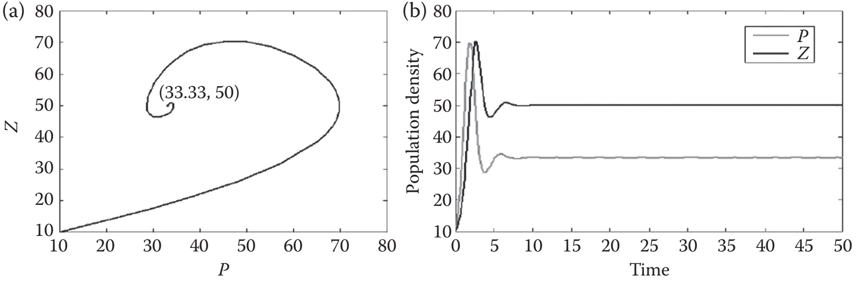

Figure 2.16
Stable focus: (a) Phase plot, (b) time series, for model (2.60).

002x016.eps

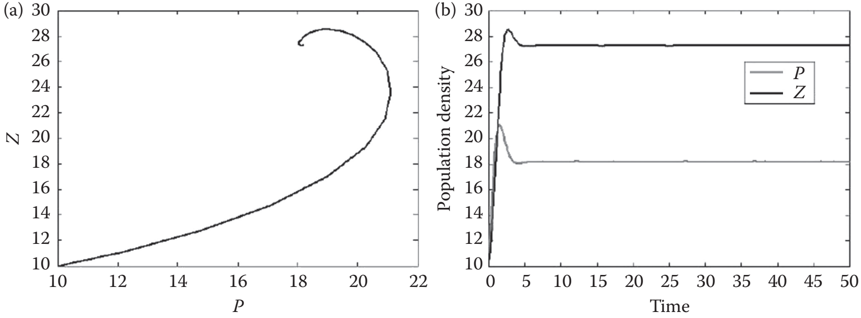

Figure 2.17
Stable focus: (a) Phase plot, (b) time series, for model (2.61).

002x017.eps

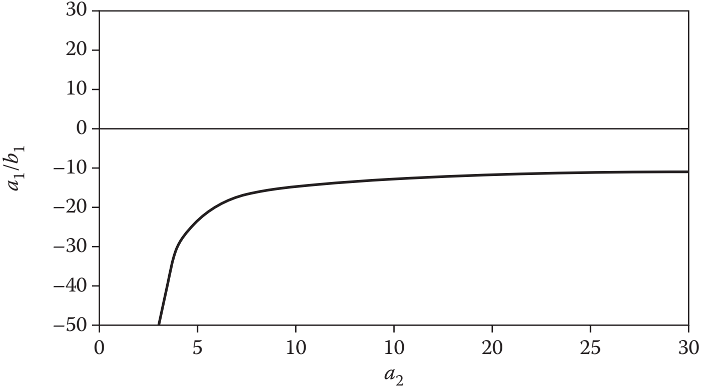

Figure 2.18
Plot of the bounding curve $xy = 2(y - 5x - 10)$.

002x018.eps

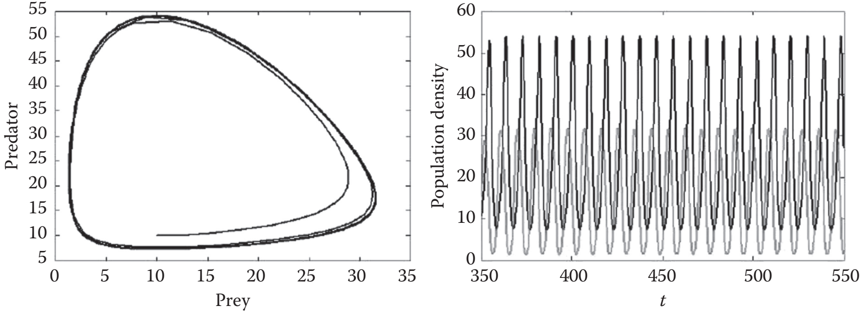

Figure 2.19
Phase plot and time-series displaying oscillatory dynamics in *RM* model (2.62) and (2.63).

002x019.eps

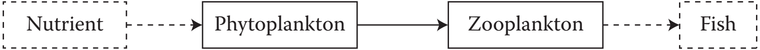

Figure 2.20
Interactions incorporated in the model system.

002x020.eps

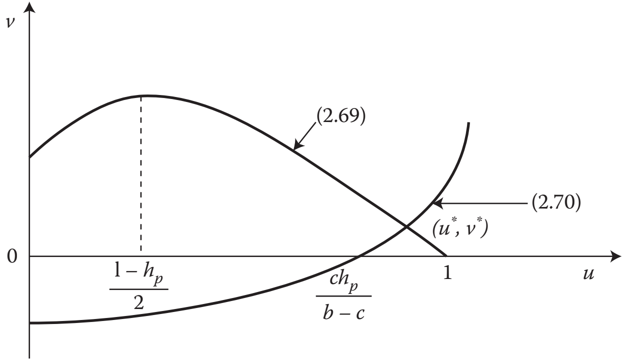

Figure 2.21
Equilibrium point $E^*(u^*, v^*)$ as the point of intersection of Equations 2.69 and 2.70. (From Dubey, B., Kumari, N., Upadhyay, R. K. 2009. *J. Appl. Math. Comput*. 31, 413–432. Copyright 2008, Springer. Reprinted with kind permission from Springer Science + Business Media B.V.)

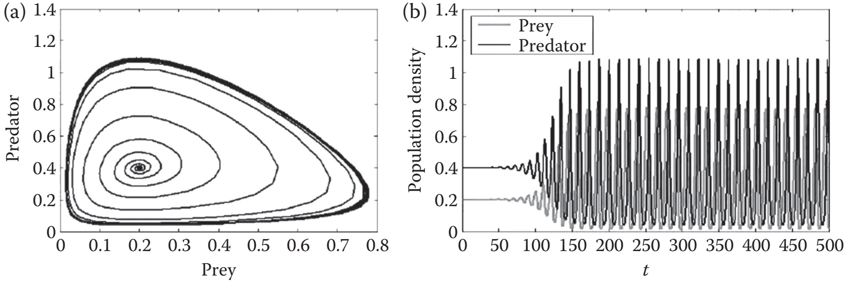

Figure 2.22
Limit-cycle solution: (a) Phase plot, (b) time series, for model (2.67) and (2.68).

002x022.eps

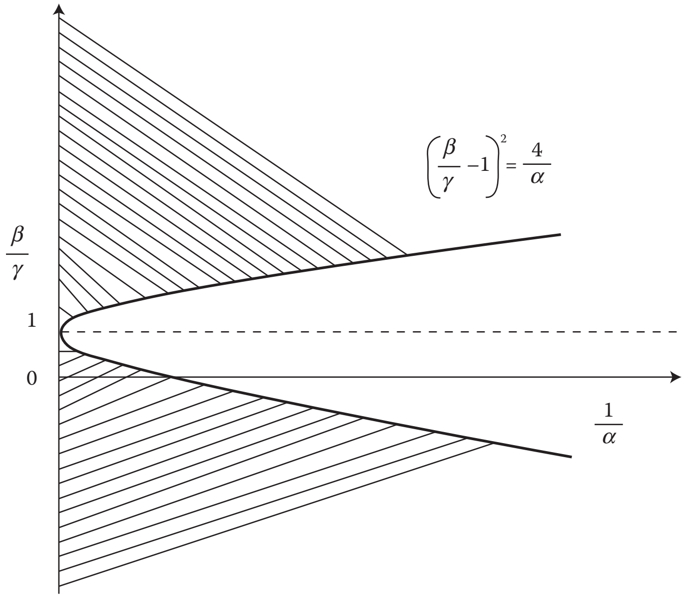

Figure 2.23
Shaded region which produces stable limit-cycle solutions. (From Upadhyay, R. K., Kumari, N., Rai, V. *Math. Model. Nat. Phenomena* 3, 71–95, 2008. With permission.)

002x023.eps

Courtesy of CRC Press/Taylor & Francis Group

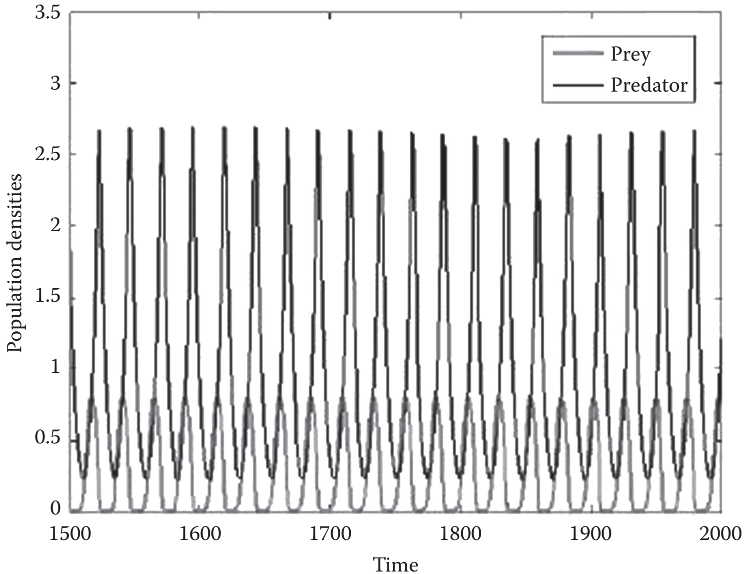

Figure 2.24
Time series displaying a limit cycle.

002x024.eps

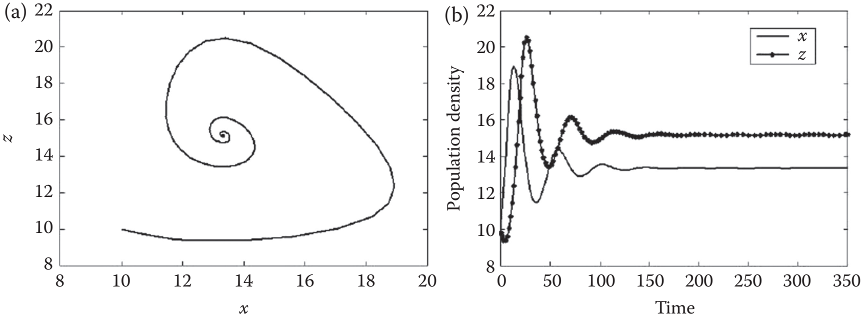

Figure 2.25
Stable focus: (a) Phase plot, (b) time series, for model (2.79) and (2.80).

002x025.eps

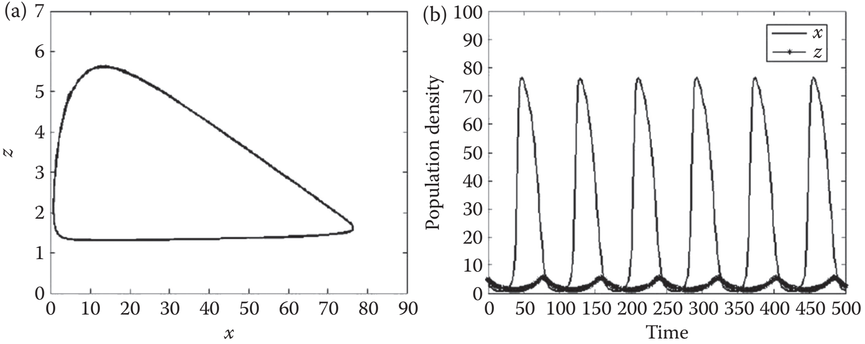

Figure 2.26
Limit-cycle solution. (a) Phase plot, (b) time series, for model (2.79) and (2.80).

002x026.eps

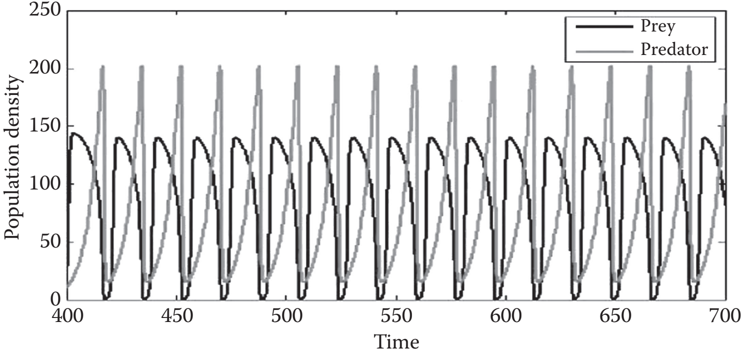

Figure 2.27
Oscillatory predator–prey dynamics exhibited by the HT model.

002x027.eps

Courtesy of CRC Press/Taylor & Francis Group

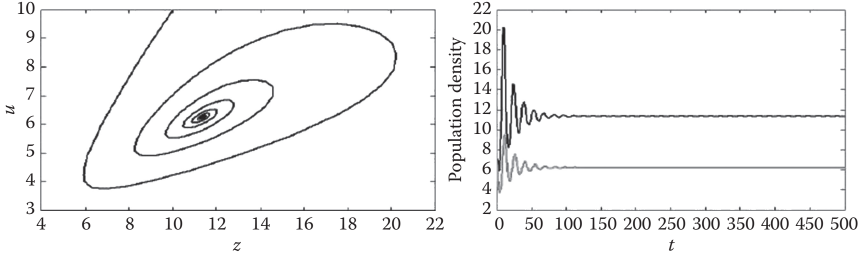

Figure 2.28
Phase plot and time series for the model system (2.90) and (2.91) for the given set of parameter values.

002x028.eps

Figure 2.29
Fashion dress designed and created using model (2.112) and (2.113). (Courtesy Eri Matsui, Keiko Kimoto, and Kazuyuki Aihara. Fashion Show in Japan, 2010; Kazuyuki Aihara, private communication.)