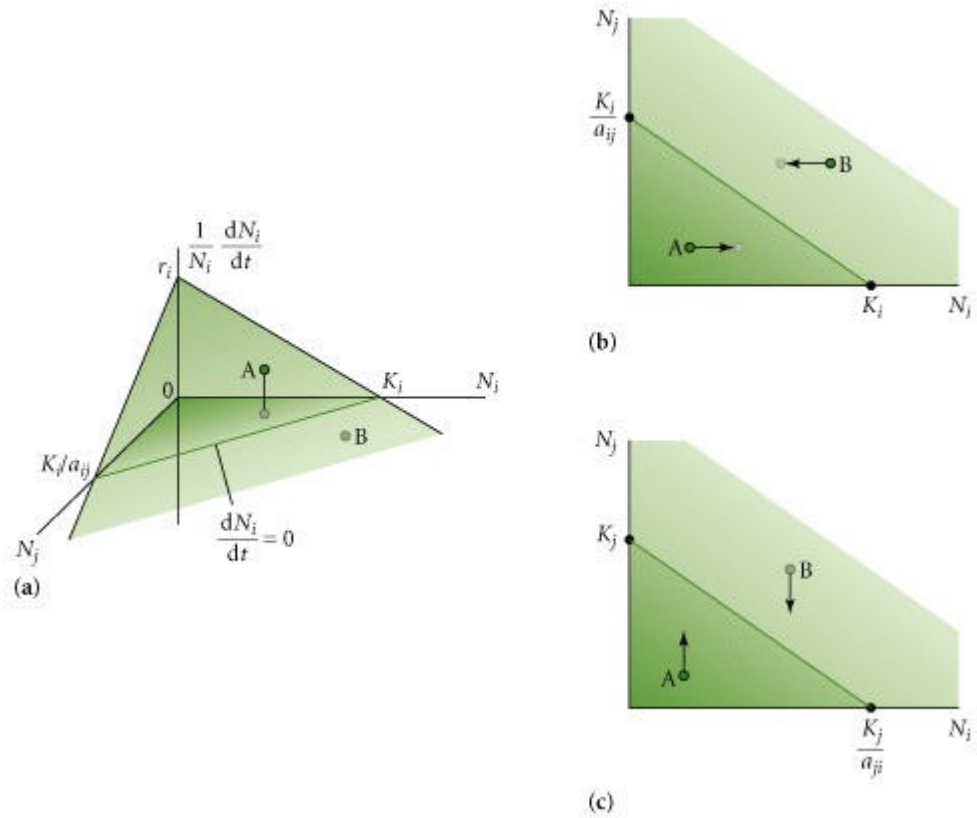


From Ricklefs & Miller (2001)

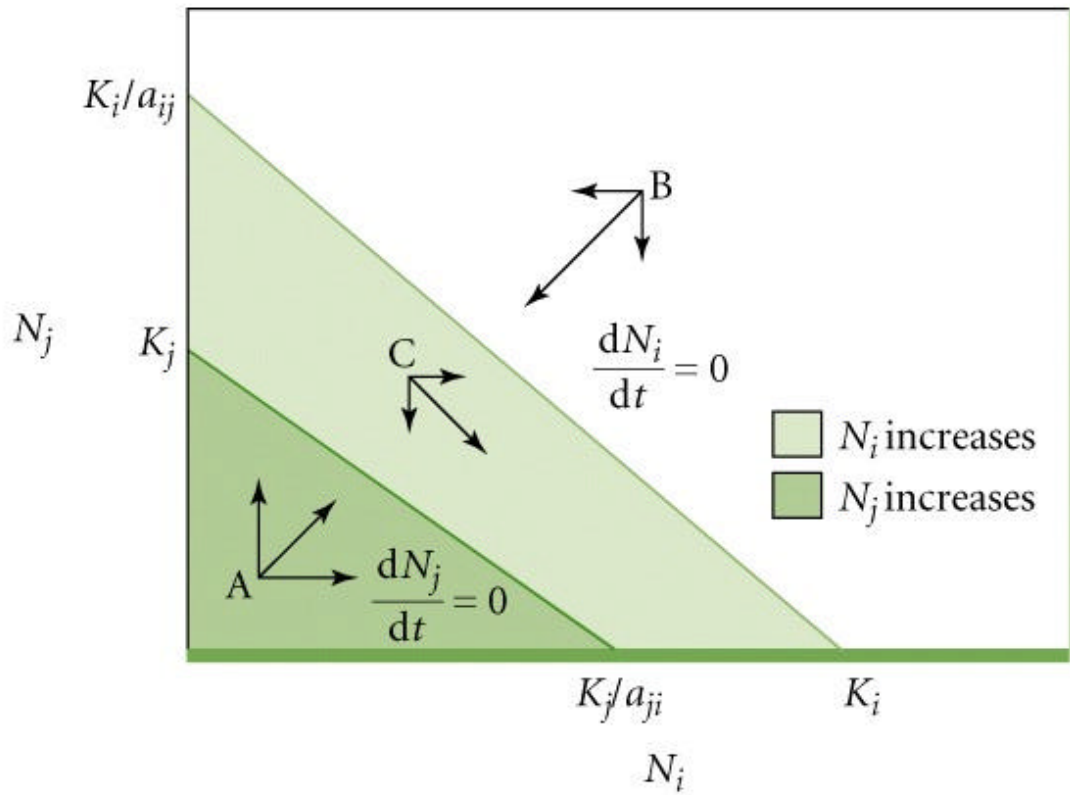
0-isoclines:  $S_p i$  (abscissa);  $S_p j$  (ordinate)

Growth at **A**, Decline at **B**



Sp i Competitively Excludes Sp j

Invasion Analysis; Sp i Invades at  $K_j$

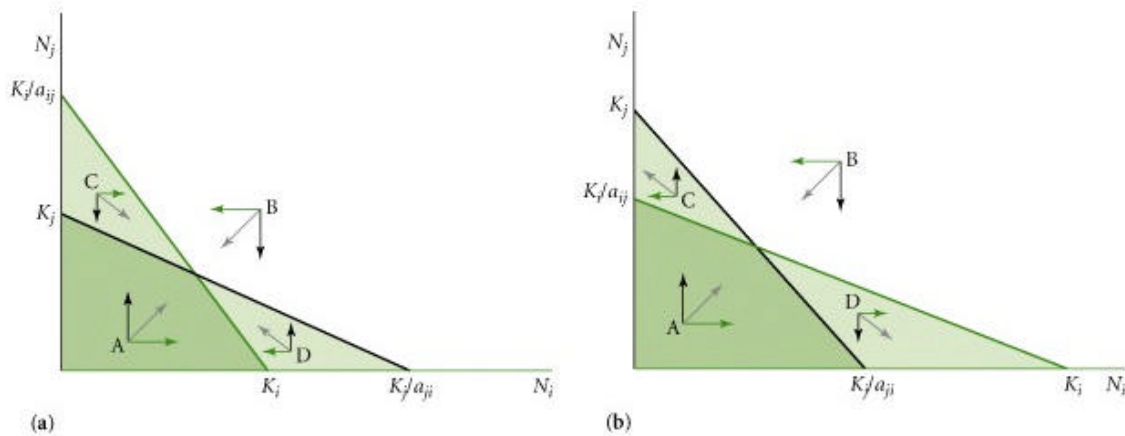


**Right:** Larger competition coefficients

Sp i: Red 0-isocline

Sp j: Black 0-isocline

Neither invades the other, Competitive Exclusion



**Left:** Lesser Competition Coefficients

Sp i: Red 0-isocline

Sp j: Black 0-isocline

Each Sp Invades the Other, Competitive Coexistence

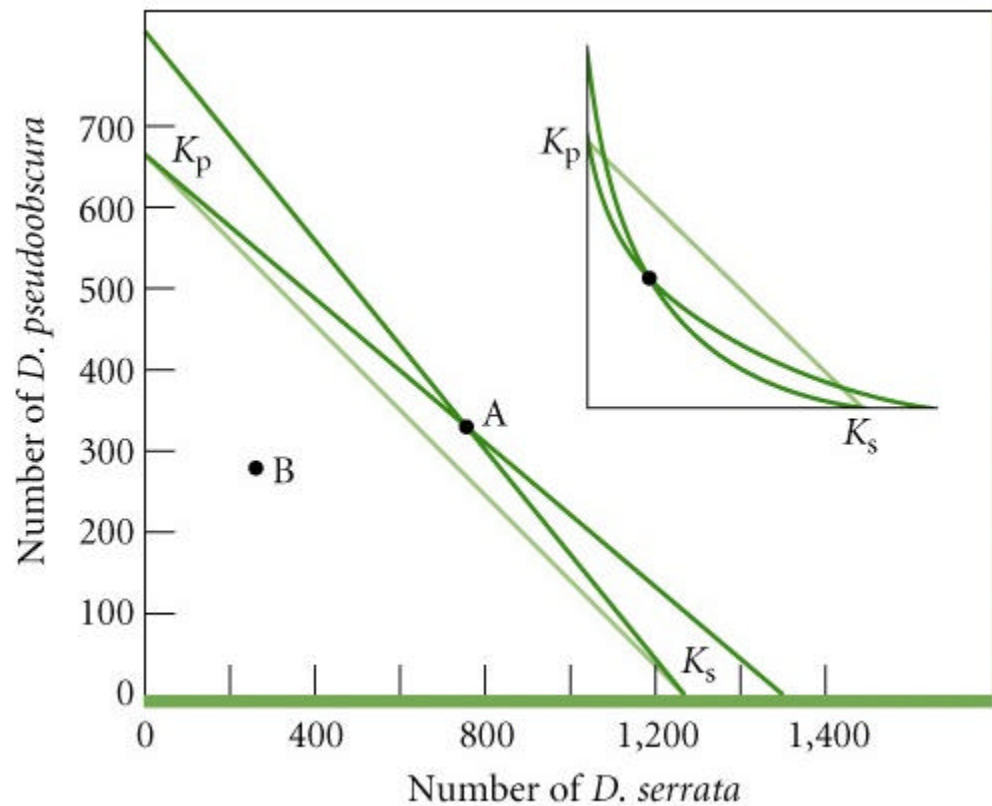
## Drosophila Spp: lab cultures

**TABLE 21-2** Equilibrium population sizes in competition experiments at which *Drosophila pseudoobscura* coexists with *D. serrata*

	Mathematical expression according to logistic equation	Adult population size
Species raised separately		
<i>D. pseudoobscura</i>	$N_p = K_p$	664
<i>D. serrata</i>	$N_s = K_s$	1,251
Species raised together		
<i>D. pseudoobscura</i>	$\hat{N}_p = K_p - a_{ps}\hat{N}_s$	252
<i>D. serrata</i>	$\hat{N}_s = K_s - a_{sp}\hat{N}_p$	278
		Total = 530

(Data from Ayala 1970.)

## Coexistence; “Low” Combined Density



Each Can Advance When Rare;

Non-Linear 0-Isoclines

Invasion Analysis Predicts Coexistence