

Figure 2.

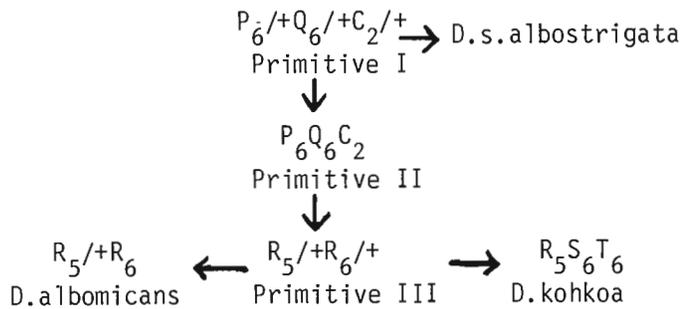
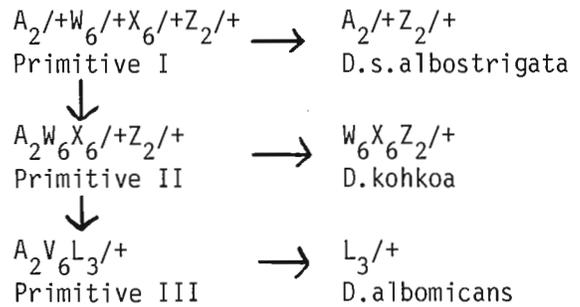


Figure 3.



Balwin, G. University of Queensland, Australia. Sexual isolation between three species of the *D.nasuta* complex.

The three species examined here are *D.S.albostrigata*, *D.albomicans* and *D.kohkoa*. An isolate each of *D.S.albostrigata* and *D.kohkoa* was collected from Luzon, Philippines, whilst another isolate of *D.albomicans* was collected from Taiwan.

Two forms of sexual isolation tests were conducted and these were "no choice" and "male choice" tests (Strickberger 1962). Both tests were employed in the intraspecific crosses whilst only the "no choice" test was used for interspecific tests.

Results of the intraspecific "no choice" and "male choice" tests are shown in Tables 1 and 2 respectively. For both tests, the different populations of *D.S.albomicans* and *D.kohkoa* display a high degree of crossability. Similarly, the "male choice" test indicates the same

situation between the two populations of *D.S.albostrigata*. However, the "no choice" test indicates a significant divergence from the expected random mating pattern, especially between males from the River Kwai and females from Luzon. The sex of any F1 offspring were also recorded for these crosses (Table 3). Both *D.S.albostrigata* and *D.kohkoa* exhibited the expected 1:1

Table 1. Intraspecific "no choice" test

Species	Cross	Total	Insemi-nations	%Cross-ability	χ^2
<i>D.s.albostrigata</i>	L σ × RK ϕ	145	105	72.41	11.03
	RK σ × L ϕ	113	64	56.64	21.23
<i>D.albomicans</i>	T σ × RK ϕ	116	116	100.00	0.00
	RK σ × T ϕ	110	109	99.09	0.01
<i>D.kohkoa</i>	L σ × RK ϕ	134	132	98.51	0.03
	RK σ × L ϕ	110	106	96.36	0.15

*Cross: L = Luzon, RK = River Kwai, T = Taiwan

Table 2. Intraspecific "male choice" test.

Species	Cross	Homogamic inseminations		Heterogamic inseminations	
		I	χ^2	I	χ^2
<i>D.s.albostrigata</i>	L σ × (L ϕ + RK ϕ)	89		80	
	L σ × (L ϕ + RK ϕ)	80		73	0.049 0.80
	RK σ × (RK ϕ + L ϕ)	84		74	
	RK σ × (RK ϕ + L ϕ)	82		72	0.064 1.28
<i>D.albomicans</i>	T σ × (T ϕ + RK ϕ)	113		113	
	T σ × (T ϕ + RK ϕ)	116		116	0.000 0.00
	RK σ × (RK ϕ + T ϕ)	97		95	
	RK σ × (RK ϕ + T ϕ)	117		115	0.009 0.04
<i>D.kohkoa</i>	L σ × (L ϕ + RK ϕ)	67		67	
	L σ × (L ϕ + RK ϕ)	75		76	-0.003 0.04
	RK σ × (RK ϕ + L ϕ)	82		85	
	RK σ × (RK ϕ + L ϕ)	74		74	-0.009 0.03

*Cross: L = Luzon, RK = River Kwai, T = Taiwan.

•Denotes the strain marked with ink.

Table 3. Sex ratios in F₁ progeny from "no choice" test.

Species	Cross	No. of F ₁ ♀	No. of F ₁ ♂	χ ²
D.s.albostrigata	L♂ × RK♀	431	426	0.03
	RK♂ × L♀	243	252	0.16
D.albomicans	T♂ × RK♀	533	348	38.85
	RK♂ × T♀	381	309	7.51
D.kohkoa	L♂ × RK♀	350	314	1.95
	RK♂ × L♀	453	416	0.34

*Cross: L = Luzon, RK = River Kwai, T = Taiwan.

Table 4. Interspecific "no choice" test.

Cross	Total	Insemi- nations	%Cross- ability
AM♂ × AS♀	343	7	
AS♂ × AM♀	340	0	1.02
AM♂ × KK♀	268	14	
KK♂ × AM♀	214	0	2.90
KK♂ × AS♀	180	8	
AS♂ × KK♀	198	0	2.12

*Cross: AS = D.s.albostrigata, AM = D.albomicans, KK = D.kohkoa

ration between males and females but D.albomicans showed a predominance of females amongst F₁ offspring. This results is in agreement with Haldane's Law (1922).

Sexual isolation data from the "no choice" interspecific tests are presented in Table 4. It will be noted that the highest level of crossability was between D.albomicans and D.kohkoa, followed by the cross between D.kohkoa and D.albomicans. These results are consistent with morphological groupings (Thongmeearkom, Clyde & Mather 1977). Also evident is an asymmetrical mating pattern consistent with that proposed by Watanabe and Kawanishi (1979).

The isolines used in these experiments were collected and established by Dr. W.B. Mather.

References: Strickberger, M.W. 1962, Experiments in Genetics with Drosophila; Haldane, J.B.S. 1922, Sex ratio and unisexual sterility in hybrid animals, J. Genet. 12:102-109; Thongmeearkom, P., M. Clyde & W.B. Mather 1977, Key to members of the Drosophila nasuta subgroup, DIS 52:123; Watanabe, T.K. & M. Kawanishi 1979, Mating preferences and the direction of evolution in Drosophila, Science 205:906-907.

Band, H. T. and R. N. Band. Michigan State University, East Lansing, Michigan. C. amoena and other drosophilids in Michigan.

Collections of drosophilids in four areas of Michigan, west Michigan (Grand Rapids), mid-Michigan (East Lansing), northern lower peninsula (East Jordan), and the upper peninsula (Sagola), demonstrate the occurrence of endemic and widespread species in all areas. C. amoena

can also be found breeding in apples in all areas. Species emerging from the apples from the old orchard at Grand Rapids were included in Band and Band (1980) except that D. algonquin was incorrectly listed as D. athabasca. Species emerging from apples at East Jordan in 1981 were included in Band and Band (1982a,b). All have been included in Table 1.

In the suburban neighborhood in 1982 D. putrida adults collected in May were in such excellent condition this species probably overwinters in a preadult stage. C. amoena adults were laying eggs in the softened endemic crabapples in mid-May and were seen on small green fallen apples in the suburban neighborhood by mid-June. This species never came to collecting traps supplied with other baits such as cantaloupe or watermelon which attracted a wide variety of Drosophila. This may also be a first report that drosophilids can and do breed in ornamental crabapple fruits which also serve as overwintering sites for cold hardy C. amoena larvae.

Neither D. immigrans nor D. busckii have previously been reported in the upper peninsula according to data obtained from the MSU Entomological Museum. In fact, of the four species found in Dickinson County, only C. amoena had been collected in the past. This does not mean either species is a recent immigrant. D. simulans is also not included in the collection of Michigan drosophilids although it had been found among those collected at a Nature Center in Lansing in the 1960s.

All the species have been found in domestic habitats. D. immigrans and C. amoena were also at woodland sites. Confirming the domesticated status of C. amoena in Michigan, it has also been found among drosophilids at an outdoor fruit stand.

Periscelis annulipes Loew (one specimen, a male) was also among drosophilids collected at the East Lansing neighborhood site.