Sunkel (1983) has described dominant mutations at the Bristle on arista locus with phenotypes very similar to the variant described here. They are lethal when homozygous. He has mapped this locus 0.8 mu distally to sp, and within polytene chromosome region 60E1;2-4. Sunkel (1983) also reported that Ba^m/Ba^1 heterozygotes die as pharate adults with display of extreme malformations of antennae and legs. It appears, therefore, that Ba^m is a leaky mutation of that locus.

References: Lewis,E.B. 1981, v.23:189-208 in Developmental Biology Using Purified Genes (Brown & Fox eds), ICN-UCLA Symposia on Molecular and Cellular Biology, Academic Press, New York; Sunkel,C. 1983, Genetic and developmental analysis of the homeotic mutation Brista in Drosophila melanogaster, PhD thesis, University of Sussex.

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Drosophila of Black Hawk County, Iowa.

Drosophila have been collected from lowland forest, upland forest and sand prairie communities near Cedar Falls, Iowa. The lowland forest, dissected by a stream, consists primarily of box elder, black cherry, hackberry, black walnut, green ash and cork elm. The upland forest, situated on a river bluff dissected by numerous ravines which periodically contain water, consists of oak, hickory, basswood and maple. The rural sand prairie is a virgin mixed grass prairie traversed by a moist swale fringed by big bluestem and Indian grass with elevated xeric areas dominated by little bluestem.

The collection data are shown in Tables 1 (Lowland forest), 2 (Upland forest) and 3 (Sand prairie). All 1982 collections were made by netting flies attracted to buckets containing banana bait. In 1983 all collections were secured in traps baited with bananas (Heim 1978). For three of the species (D.affinis, D.algonquin and D. athabasca) the males can be readily distinguished but distinguishing the females is very difficult. If we only collected males of one of the three species, the females were assumed to be conspecifics; otherwise females were not separated as to species.

Table 2. Upland forest community.

1982:	May		June		July	
Species	♂	♀	♂	♀	♂	♀
D.affinis	10*		103*		112	70
D.falleni	0	0	18*		76	68
D.robusta	0	0	0	0	43	65
D.putrida	0	0	28*		12*	
D.melanogaster	3*		0	0	0	0
Total collections	1		2		2	

* = not sexed.

The species compositions in our collections from the three communities are compared in Table 4. D.affinis is the most abundant species in all three communities while D.falleni and D.putrida are common in all three. D.robusta is common in two and present in all three. D.tripunctata, although common in the lowland, is apparently absent from the other two communities. This species is most abundant in late summer and fall and may have been excluded from upland forest collections since that community was sampled much earlier in the year. We will sample the upland forest more extensively in the future and thus

Table 3. Sand prairie community. Note that a collection during April 1983 yielded no flies. (* = not sexed)

	1982		1983:									
	June		May		June		July		Aug.		Sep.	
Species	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀
D.affinis	56	21	0	2	3	7	2	12	2	14	0	0
D.algonquin	0	0	0		0	0	2		0	0	5	6
D.falleni	5* 21	0	0	0	0	0	0	1	0	0	0	0
D.putrida	16*		0	0	0	0	1	2	0	0	1	2
D.quinaria	0	0	0	3	0	0	0	0	0	0	0	0
D.buskii	0	0	1	0	0	0	0	0	0	0	0	0
D.robusta	0	0	0	0	0	0	0	0	0	0	2	0
Total collections	1		3		2		2		1		2	

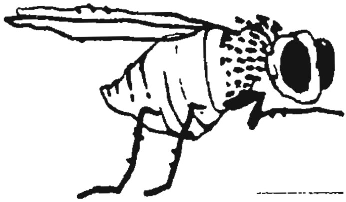

Table 1. Lowland forest community.

Species	1982														1983													
	May		June		July		Aug.		Sept.		Oct.		Nov.		Apr.		May		June		July		Aug.		Sept.		Nov.	
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀
D. affinis	619*		564	91	348	194	0	0	5		1		2		0	0	28	17	332	680	320	591	14	23	40	34	6	7
D. algonquin	0	0	0	0	0	0	0	0	0	8	0	7	2	8	0	0	5		31		0	0	0	0	3		0	0
D. athabasca	0	0	0	0	0	0	3	2	15		2		3		0	0	0	0	0	0	0	0	0	0	0	0	0	0
D. falleni	87*		249*		100* 12	9	1	0	5	17	12	12	0	3	0	0	0	1	1	4	7	20	0	1	2	5	0	0
D. tripunctata	0	0	20*		31	3* 13	9	11	62	43	41	17	19	11	0	0	0	0	2	2	9	13	6	1	146	56	12	5
D. robusta	1*		4	8* 21	45	80	1	0	0	2	1	7	0	1	6	5	3	2	2	1	9	9	4	3	24	36	3	6
D. putrida	0	0	13*		29*		0	1	0	0	9	7	1	5	0	0	9	8	7	10	19	15	0	1	35	27	0	0
D. quinaria	0	0	0	0	0	0	0	0	0	0	2	6	0	0	0	0	0	1	1	0	2	0	0	0	2	6	0	0
D. buskii	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	0	0	0	6	15	1	1	0	0	0	0	3	0
D melanogaster	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D. immigrans	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	2	2	0
D. duncani	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	8	0	2	0	0	0	0	0	0
D. testeca	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	5	0	0	1	0	0	0
D. victoria	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	1	0	0	0	0	1	0	0
Total collections	5		3		4		1		5		4		1		1		3		2		2		1		2		1	

NOTE: A collection during October, 1983, yielded no flies.
* = not sexed

allow a more accurate comparison of the species compositions of the two forest communities.

Few members of the species commonly associated with humans (D.buskii, D.immigrans and D.melanogaster) were collected. We conclude that our samples represent natural Drosophila populations and not human-associated ones.

We thank E. Pilkington for his help with the early collections and L. Throckmorton, M. Wheeler and A.C. Haman for help in keying out our specimens.

Reference: Heim,W.G. 1978, DIS 53:216.

Table 4. Species % composition by community.

Species	Lowland forest	Upland forest	Sand Prairie
D.affinis	56.3	48.5	56.1
D.algonquin	0.7	0.0	7.0
D.athabasca	0.4	0.0	0.0
Undetermined aff.-alg.-ath.♀♀	13.3	0.0	7.5
D.falleni	9.7	26.6	14.4
D.tripunctata	9.4	0.0	0.0
D.robusta	5.0	17.8	1.1
D.putrida	3.5	6.6	11.8
D.buskii	0.5	0.0	0.5
D.quinaria	0.4	0.0	1.6
D.duncani	0.2	0.0	0.0
D.testeca	0.2	0.0	0.0
D.immigrans	0.1	0.0	0.0
D.victoria	0.1	0.0	0.0
D.melanogaster	0.1	0.5	0.0
Total collected	5657	608	187

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Partial inhibition of the effect of the mutant red malpighian tubules (red) by other eye colour mutations of Drosophila melanogaster.

A study of eye pigments and related metabolites in adult flies (9 days after emergence) of ten strains of double mutants of D.melanogaster has been carried out. All the strains carry two eye colour mutations, one of them being "red."

The separation of eye pigments and related metabolites in these strains was carried out by means of two-dimensional thin-layer chromatography (TLC) on cellulose plates, using as extraction solvent methanol-acetic acid-water (4:1:5 by vol) and as elution solvent isopropanol-2%-ammonium acetate (1:1, v/v) for first dimension (3 hr) and 3% aqueous ammonium chloride for the second one (50 min). Quantification was made by measuring the fluorescence directly on the plate with a fluorescence spectrophotometer (PERKIN ELMER MPF 44B). The results of the ten double mutants strains are compared with the patterns of the single mutants (Ferre et al. 1983) in Table 1.

Although the effect of mutant "red" consists in a strong reduction of pteridines (except biopterin), some double mutants such as cn red, rb red, and cm red and to a lesser extent ltd red, cl red and v red, present a significantly higher quantity of drosopterins, PDA and sepiapterin and a lower quantity of biopterin compared to the mutation red alone. This reduction may be interpreted as a partial inhibition of the effect of red mutant. Especially interesting is the case of cn red strain, since the gene cn$^+$ is known to be the structural gene of the enzyme Kynurenine hydroxylase and thus to affect only ommochrome synthesis.

The malpighian tubules of the wild type presents a light yellow colour produced by the accumulated 3-OH-kynurenine; however, the malpighian tubules of the mutant "red" are red-coloured (Oster 1954), due to the conversion of the accumulated 3-OH-kynurenine into ommochromes, of which a small quantity is xanthomatin and a larger quantity is ommin (Wessing & Bonse 1966). In addition this mutant, in the eyes, accumulates 31% of brown pigment (H_2-xanthomatin) and around 5% of drosopterins compared to the wild type (Ferre et al. 1983). Transport defects in malpighian tubules are the basis for the anomaly in some eye colour mutants of D.melanogaster that have reduced amounts of both pteridines and ommochrome (Sullivan et al. 1975; Howells et al. 1977; Sullivan et al. 1979). This fact strongly suggests that the gene red$^+$ is acting on the transport of pigments precursors, being unable to transport precursors of pteridines and ommochromes efficiently. For reasons not known it seems that certain mutations as cn, rb, cm, ltd, cl and v produce a partial inhibition of