The tests confirm our field observations that pachea is monophagous. The table summarizes the data from 14 test vials run concurrently with 7 kinds of cereus cacti and two control vials (no autoclaved cube of cactus added to banana media). Each vial was charged with 15 egg-laying females and 15 fertile males randomized from 5 cultures of different geographic origin. The parents, which were as yet alive, were discarded 22 days later to prevent overlap with the progeny, which began emerging 3 days after discard. Many eggs were deposited by the parents on senita, organpipe, and agria cactus cubes. Only a few eggs were deposited in the vials with saguaro. All progeny were placed on fresh banana media having the same kind of cactus cube as their parents. Twenty-one days after the first emergence, the senita progeny had deposited many eggs, which later hatched, while all other cacti and the control progeny had deposited none. Male progeny from all vials were fertile. There were 2.7 times more male than female non-senita progeny among the flies selected for dissection. Even though eggs with filaments were found in some of the ovaries of non-egg laying progeny, the filaments were not as distinct as the senita progeny indicating that development in this case was arrested in a late stage. Several of the cacti, other than not containing the correct sterol, also appear to inhibit D. pachea in parental egg laying and larval development. Separate tests were run with Peniocereus greggii (night-blooming cereus). Both the tuberous roots and the thin stems were negative for supporting pachea. These 8 species of cacti represent the common cereus cacti of the subtribe Cereanae (arborescent cacti) in the Sonoran Desert. The genera Bergerocactus, Cephalocereus, Myrtillocactus and Wilcoxia have more local distributions in this desert and have not been tested.

Mather, Wharton B. University of Queensland, Australia. Chromosomal polymorphism in two marginal populations of D. rubida.

When D. rubida was discovered at Cairns, Queensland, Australia in 1958 it appeared to be monomorphic for chromosomal inversions (Mather, 1961) which fitted well with the hypothesis of da Cunha and Dobzhansky (1954) that inversion heterozygosity falls off towards the periphery of the range of a species. Cairns is certainly near the southern limit of the range of the species. Since 1958 it has been shown that D. rubida is highly polymorphic for inversions throughout Papua and New Guinea.

Two stations in the Cairns area were sampled with banana bait in June 1966 with the results shown in the table. Crystal Cascades is 7 miles S.W. of Cairns and Lake Barrine 21 miles S.S.W. of Cairns. Both habitats consist of tropical rain forest and were collected from within a few days of each other but whereas Crystal Cascades is at sea level Lake Barrine is on the Atherton Tableland at 2400 feet.

From the table it will be noted that both stations are polymorphic for inversions. However this polymorphism is not nearly so marked as at stations nearer to the centre of the range of the species in Papua and New Guinea.

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Chromosome	Crystal Cascades %		Lake Barrine %	
	♂	♀	♂	♀
II +	93.4	94.2	96.9	92.9
RC	6.6	5.8	3.1	7.1
III +	72.1	73.1	68.8	75.7
A	1.8	1.9	-	-
B	2.2	1.9	-	-
D	26.6	25.0	31.3	24.3
Flies scored	113	26	16	35

References:

da Cunha, A. G. and Th. Dobzhansky, 1954. A further study of chromosomal polymorphism in Drosophila willistoni in relation to the environment. Evolution, 8:119-134.

Mather, W. B. 1961. Chromosomal polymorphism in Drosophila rubida Mather. Genetics, 46:799-810.