Disruptive Selection Encyclopedia Article

Disruptive Selection

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Contents

Disruptive Selection Encyclopedia Article.....1

Contents.....2

Disruptive Selection.....3

Disruptive Selection

Disruptive selection is a special form of directional selection. By choosing two phenotypic extremes within a population, successive breeding can be carried out to produce two discontinuous strains. For example, if a plant breeder breeds the longest and the shortest seeds within a population, then after several generations two different strains would be produced: one bearing long seeds and the other bearing short seeds. The strains would be morphologically dissimilar in respect of their seed lengths, but they would be the same in all non-linked effects.

Disruptive selection forces the organism to produce two different forms. When it occurs under natural conditions, disruptive selection can be the first step on the production of two different species. An example of this occurrence could be seen if a river drove its path through a population of plants. The plants cannot move so they have to adapt or die out under the new conditions. Within the population, some individuals may be better suited to waterlogged conditions and will thrive at the riverbed. Other individuals living the furthest from the water may be better suited to dryer conditions. The alteration of the river's course forces a wedge within the population, producing two rapidly diverging forms of the plant species.