



Giant kangaroo rat (*Dipodomys ingens*)



Giant kangaroo rats (GKR) are keystone species endemic to the San Joaquin Valley in central California. They build elaborate burrows that they, and other animals in their arid grassland communities use for shade and shelter. GKR are territorial, yet colonial. They occupy a territory about 20 meters in diameter, with unoccupied space between each neighboring territory. GKR will temporarily live with their mates during the breeding season, and females will live with their offspring until they disperse. They are not believed to maintain the same mate for a long period of time. They eat seeds which they gather from plants in their territory, and which they cache on top and inside of their burrows.

Uneaten seeds germinate in spring creating thick patches of vegetation around GKR burrows.

Physiological:

Kangaroo rats use countercurrent heat exchange in their nasal cavity to cool blood air leaving the lungs, encouraging water to condense and be retained in the body (Walsberg 2000).

Morphological:

Kangaroo rats have powerful back legs allowing them to use ricochetal locomotion, which is energy efficient. Additionally, using their long tails as a counter balance allows them to make quick, tight turns, allowing them to move unpredictably evade predators (Bartholomew and Caswell 1951)

Physiological:

Kangaroo rats gain most of their water from their diet. By eating seeds rich in carbohydrates they are able to maximize the amount of water gained from food. They tend to choose carbohydrate rich foods in dry conditions, and protein rich foods in wetter conditions (Frank 1988)

Sources:

Bartholomew, G. A. Jr. and H. H. Caswell, Jr. 1951. Locomotion in kangaroo rats and its adaptive significance. *Journal of Mammalogy* 32: 155-169

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Walsberg, G. E. 2000. Small mammals in hot deserts: some generalizations revisited. *BioScience* 50.