# Good Buddies

**Chihuahuan Desert**

| "Good Buddies" Dependency Relationships | |
|---|---|
| Yucca - Yucca moth | Mutualism |
| Mistletoe - Mesquite | Parasitism |
| Phainopepla - Mistletoe | Mutualism |
| Cactus wren - Cholla | Commensalism |
| Wood rat - Prickly Pear | Mutualism |
| Hummingbird - Ocotillo | Mutualism |
| Javelina - Mesquite beans | Mutualism |
| Bronzed cowbird - Oriole | Parasitism |
| Digger Bee - Palo Verde | Mutualism |
| Broomrape - Bursage | Parasitism |

**Yucca/Yucca Moth**
Without attendant moths, yucca plants cannot set seeds and can reproduce only by root offshoots. The yucca plant releases a strong scent at night, when the yucca moth is active. The yucca moth, attracted by this scent, gathers pollen from a yucca flower and forms it into a ball-shaped mass. The moth deposits her eggs and the pollen in a flower on another plant. This ensures that the plant will be cross-pollinated and that the yucca moth larvae have a steady food supply by eating some, but not all, of the developing seeds. Both species benefit.

**Mistletoe/Mesquite**
The mistletoe plant lives in the canopy of the mesquite tree. The mistletoe lives off the food and the nutrients the mesquite tree produces. The mistletoe does not manufacture its own food. It is a parasite on the mesquite tree. This relationship is beneficial to the mistletoe and detrimental to the mesquite.

**Phainopepla/Mistletoe**
The mistletoe is a parasitic plant that lives in the crown of the mesquite tree. It produces large berries that are very sticky. The phainopepla is a beautiful black desert bird with a crest and white wing patches. The phainopepla feeds on the mistletoe berries. Some of the sticky berries stick to the feet of the phainopepla. When the bird flies to a different tree, the berries on the bird's feet stick to the tree and are transferred to a new host. This benefits both species.

**Cactus Wren/Cholla Cactus**
The cactus wren builds its large football-shaped nest in the cholla cactus. The cholla, with its long spines, provides a well protected home for the cactus wren and its young. The cactus wren benefits and the cholla is not harmed.

**Wood Rat/Prickly Pear**
The wood rat often builds its nest in the middle of the prickly pear cactus. The thorny plant provides a well protected home for the wood rat. The wood rat also feeds on the pads and fruit of the cactus. This is a mutually beneficial relationship.

**Hummingbird/Ocotillo**
Hummingbirds are tiny jewel-like birds. They feed on nectar from flowering plants, and occasionally insects. Hummingbirds utilize a variety of plants for feeding but depend specifically on the ocotillo as an early spring food source. While getting nectar from the bright red flower of the ocotillo, the hummingbird cross-pollinates the flowers, helping the plant to successfully reproduce. The ocotillo provides the hummingbird with a reliable food source at an important time. This is a mutually beneficial relationship.

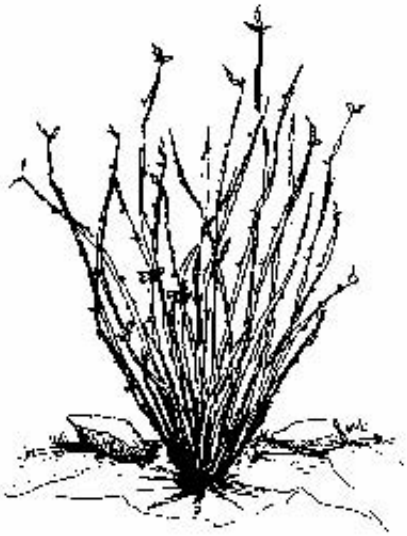
**Javelina/Mesquite**
Javelina feed extensively on dried mesquite beans. They will dig out wood rat nests to get the beans stored by the wood rat. Mesquite beans germinate and grow better after they have passed through the digestive tract of the javelina. This is a mutually beneficial relationship. The javelina feeds on the nutritive mesquite beans - the mesquite beans germinate and grow better after passing through the javelina's digestive tract.

**Bronzed Cowbird/Oriole**
The bronzed cowbird is a blackbird-sized bird with red eyes. The bronzed cowbird female deposits eggs in the nest of the oriole. The orioles feed and raise the young cowbird as their own, often to the detriment of their own young, which the cowbird chick out competes. The cowbird is a nest parasite of the oriole. This is a beneficial relationship for the cowbird, since it gets other birds to raise its young, and detrimental to the orioles, which end up raising other birds' young to the detriment of their own.

**Digger Bee/Palo Verde**
The female digger bee, a large grey bumble bee-size desert bee, digs a short tunnel in the ground to a nest or brood pot. She gathers nectar and pollen, from the palo verde flowers, which she deposits in the brood pot. When the brood pot is about two-thirds full, the female lays a single egg in the sticky syrup made of the palo verde nectar and pollen. She then seals the brood pot and tunnel with dirt. The egg hatches, the larva consumes the food gathered by the female, then emerges from the ground almost a year later as an adult. The mother bee, while collecting nectar and pollen from the palo verde tree, helps to pollinate the palo verde flowers. Both species benefit.

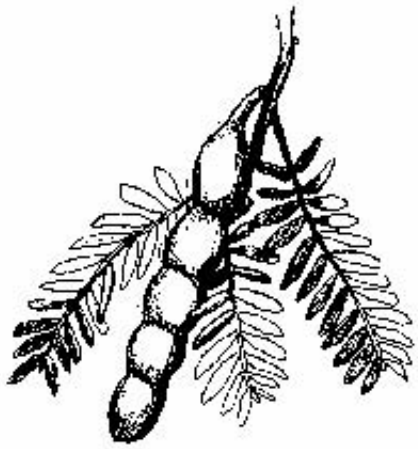
**Broomrape/Bursage**
The broomrape is a root parasite on the bursage. The broomrape is a non-photosynthetic plant - meaning it does not make its own food. It takes food, nutrients, and water from the roots of the bursage plant. The broomrape is brown in color - it does not require chlorophyll, the ingredient in plants that makes them green in color and allows them to make their own food. The broomrape plant takes food, water, and nutrients from the bursage to the benefit of the broomrape and the detriment of the bursage.

**Phainopepla**



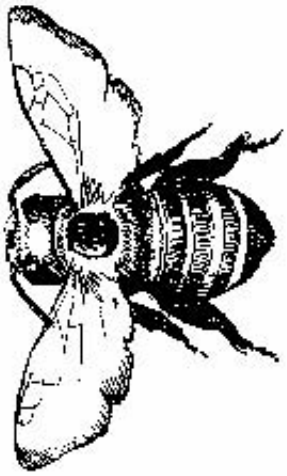
**Ocotillo**

**Cactus Wren**



**Mesquite**

**Broomrape**



**Digger Bee**

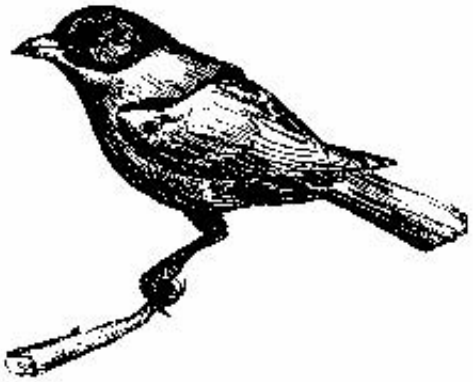
**Hummingbird**

**Yucca**

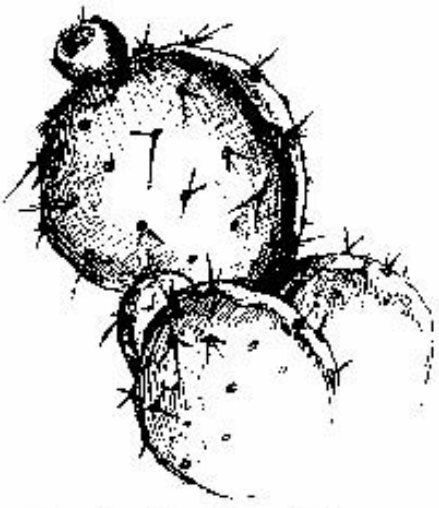
**Cholla**

**Mesquite Beans**

**Palo Verde**

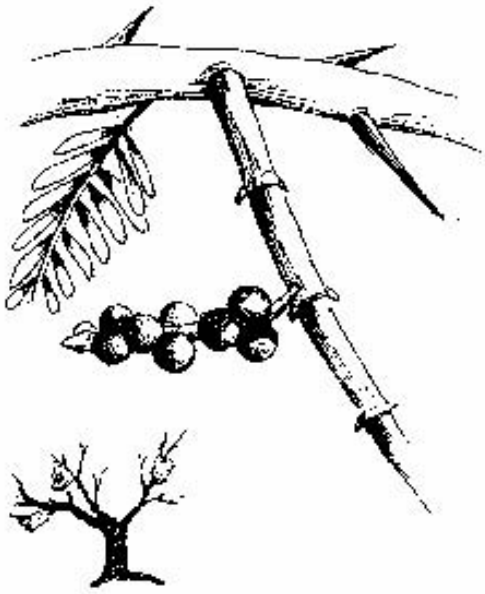


**Bronzed Cowbird**



**Prickly Pear Cactus**

**Javelina**



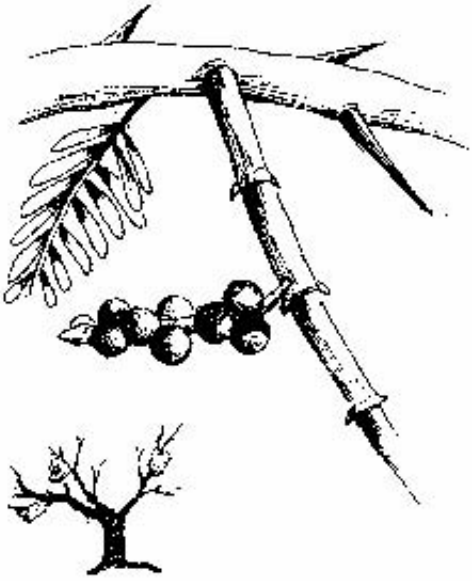
**Mistletoe**

**Bursage**

**Oriole**

**Wood Rat**

**Yucca Moth**



**Mistletoe**