

RONALD A. COLEMAN

The *Wild Orchids*



of
ARIZONA
and
NEW
MEXICO

The
Wild
Orchids of
Arizona and
New Mexico

Ronald A. Coleman

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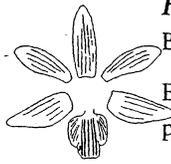
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*... memories of my father Cecil Coleman, my mother
... Coleman, and my sister Gaynell Coleman Buis.*

Coleman 2002



Hexalectris revoluta Correll

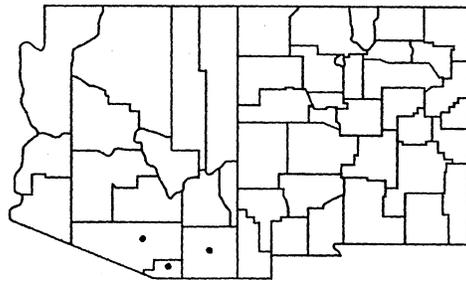
Botanical Museum Leaflets 10: 19. 1941.

Etymology: The name *revoluta* refers to the revolute habit of the sepals and petals.

Synonymy: none.

Common names: curly coralroot, Correll's cock's comb.

Plates 12, 13



Map 13. Distribution of *Hexalectris revoluta*

Description

Plant: mycotrophic, leafless, spicate, pale pink to rose to tan, 40 to 50 cm tall, with 10 to 20 flowers.

Roots: none, grows from thick, coralloid rhizome.

Leaves: none, replaced by sheathing bracts on stem.

Floral bracts: ovate, 8×3 mm.

Flowers: rose-tan to whitish, $2.1 \times 2.0 \times 1.8$ cm.

Sepals: pale rose-tan with light veining, revolute with outer third rolled back to form complete coil; dorsal sepal lanceolate, 2.2×0.8 cm; lateral sepals elliptic lanceolate, oblique, 2.0×0.8 cm.

Petals: pale rose-tan with light veining, elliptic to obovate, slightly falcate, 0.6×1.8 cm; revolute, with outer third rolled back in a full coil.

Lip: three-lobed, 1.5×1.2 cm; broadly elliptic in outline, white to pale rose-tan, with purple veining on lateral lobes, and purple raised ridges

on central lobe; lateral lobes oblong, with sinus about 2 mm; central lobe with five or seven raised ridges running entire length.

Column: narrow, curved; 1.5 cm high; white with purple shading at base; anther cap yellow, minute wings near the apex; eight yellow pollinia in four pairs.

Capsule: ellipsoidal, pendent.

Hexalectris revoluta (rev-o-loo'-ta) is identifiable on sight by the appearance of its sepals and petals. All three sepals and the lateral petals are rolled back along the outer third of their length more than 360 degrees to form a tight coil. This feature is not found on any of the other *Hexalectris* species in Arizona and New Mexico. *Hexalectris revoluta* may be initially confused with *H. spicata* with which it has several similarities, but the two are readily distinguishable. In addition to the revolute nature of its sepals and petals, *H. revoluta* can be differentiated from *H. spicata* by the shape of the lip and by its blooming season. The lateral lobes on *H. revoluta* are oblong, with the opposite sides of the lateral lobes essentially parallel to each other. On *H. spicata*, the lateral lobes are elliptic in outline, and the opposite sides are distinctly convex.

Hexalectris revoluta has a slender, sparsely flowered pale cream to tan leafless stem bearing four or five sheathing bracts. The sepals and petals, in addition to being revolute, are free and spreading. On *H. spicata*, *H. nitida*, and to some extent *H. warnockii*, the lateral sepals tilt forward and are held close to, if not against the column. The lobes of the lip are of intricate design. Their background color is whitish tan to rose-tan. The lateral lobes have distinct purple veining that is seen to be slightly raised if viewed under a microscope, but appears as simple lines to the unaided eye. The central lobe has five or seven raised purple ridges running its entire length, from near the column to the apex. The number of ridges varies from plant to plant and may even decrease on the upper flowers of the stem on large plants, but is always either five or seven. On particularly robust specimens, the outer ridges may split in two below the sinus with the lateral lobes, so that there are up to nine ridges on the lower portion of the central lobe.

Some plants of *H. revoluta* in Arizona differ from the typical flowers described above. They bloom in the same area and at the same time as the other plants, but on a shorter more sparsely flowered stem of richer tones. These plants are shorter than 25 cm and have five or six flowers. Compared to the larger form of *H. revoluta*, the sepals and petals are perhaps more revolute and reflexed backward to a greater extent, and the flowers have more purplish hues throughout. On two specimens examined in the field, the apex of the lip was solid purple, and the central lobe of the lip had only five ridges. The dorsal sepal was more lanceolate, and the lateral sepals and petals much more falcate. The column was identical to that of other *H. revoluta* orchids blooming nearby. These plants may represent a distinct, but as yet unnamed, variety of *H. revoluta*, or more conservatively, may simply demonstrate the inherent variability within the species.

Distribution

Hexalectris revoluta is known only from a few localities in northern Mexico, the Big Bend area of Texas, and Arizona. Within Arizona, it occurs in only four widely separated canyons in Cochise, Pima and Santa Cruz Counties, where it is at the northwestern limit of its range. It is not known from New Mexico.

Habitat

Though within the boundaries of the Sonoran Desert, parts of Cochise County, Pima County and adjacent Santa Cruz County consist of rolling hills, where with slight increases in elevation, the desert yields first to grasslands and then to woodlands. Canyons often cut through the terrain, particularly as the hills gain elevation nearer the mountains. With the increase in elevation, the mesquite-studded grasslands become mixed with juniper and oaks, even more so at the bottoms of the canyons. Some of these oak woodland canyons, at elevations between 4500 and 5200 feet (1370 and 1580 meters), are home to *H. revoluta*. Though oaks

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dominate, trees and shrubs in the canyon include juniper, mesquite, Arizona walnut, acacia, and desert willow. The canyons are seasonal water sources, but there may be a several-year interval between storms heavy enough to create running water. Even so, the orchids are protected from most of the force of the runoff. *Hexalectris revoluta* grows under the trees and shrubs on the edges of the canyon bottoms, and on hill-sides leading up from the canyon. Under the oaks it is in heavy leaf litter, but closer to the canyon bottom *H. revoluta* is found in very thin humus layers. In some areas, the orchids are among rock outcrops or on the edges of rocky cliffs.

Blooming Season

The pale spikes of *H. revoluta* appear in April and the blooming season lasts from mid-May to the middle of June. The quality of bloom is unpredictable but may be influenced by rainfall in the previous or current year. Some years all the plants that send up spikes will put on a good display of flowers. Other years, none of the plants that sprout in an area complete blooming. The flowers may blacken, shrivel, or be eaten. The number of plants appearing each year is variable. In one study area, the number of plants observed varied from 1 in 1996, to 18 in 1997, to 9 in 1998, to 4 in 1999. None of the plants that sprouted in 1998 managed to produce open flowers.

The harsh environment of *H. revoluta* is not shared by many other orchids. *Hexalectris spicata* var. *arizonica* grows in the same habitat, but when the flowers of *H. revoluta* are open, the richer pink spikes of *H. spicata* var. *arizonica* are barely above ground. An occasional *Malaxis soulei* may grace the more densely wooded parts of the habitat of *H. revoluta*, but they will not appear until after the monsoons start.

Conservation

Hexalectris revoluta is extremely rare throughout its range and should be nominated for federal consideration as an endangered species. Some