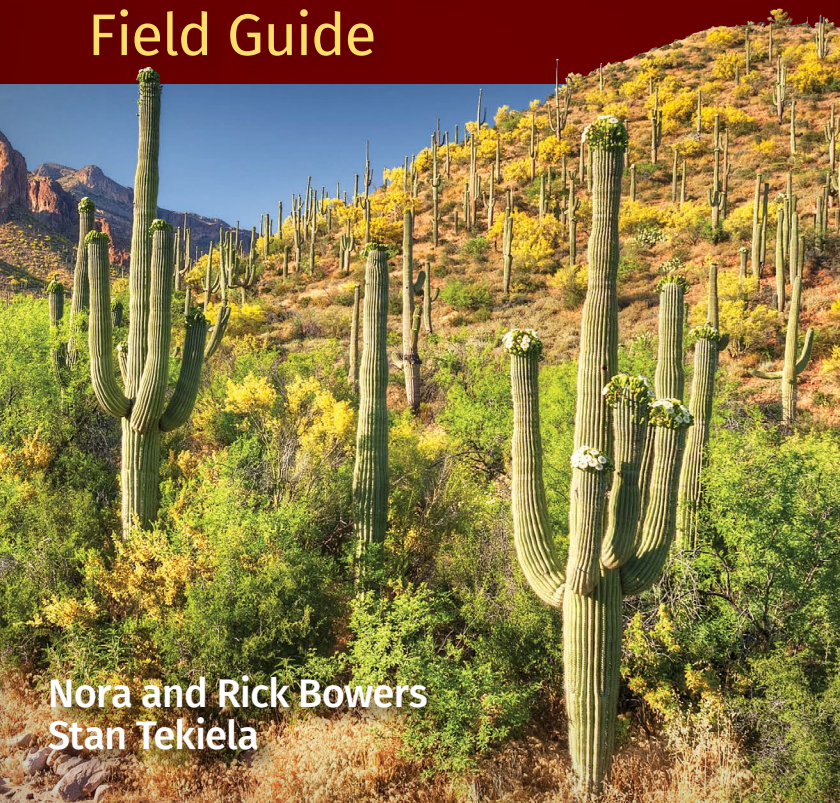


2ND EDITION

Cacti *of* Arizona

Field Guide



Nora and Rick Bowers
Stan Tekiela

CYLINDRICAL STEMS



Pincushion

pg. 23



Pineapple-Beehive

pg. 43



Hedgehog

pg. 71



Barrel

pg. 99

SEGMENTED STEMS



Prickly Pear

pg. 115



Cholla

pg. 163

STICK-LIKE STEMS



Cereus

pg. 207

COLUMNAR STEMS



Organ Pipe

pg. 211



Senita

pg. 215



Saguaro

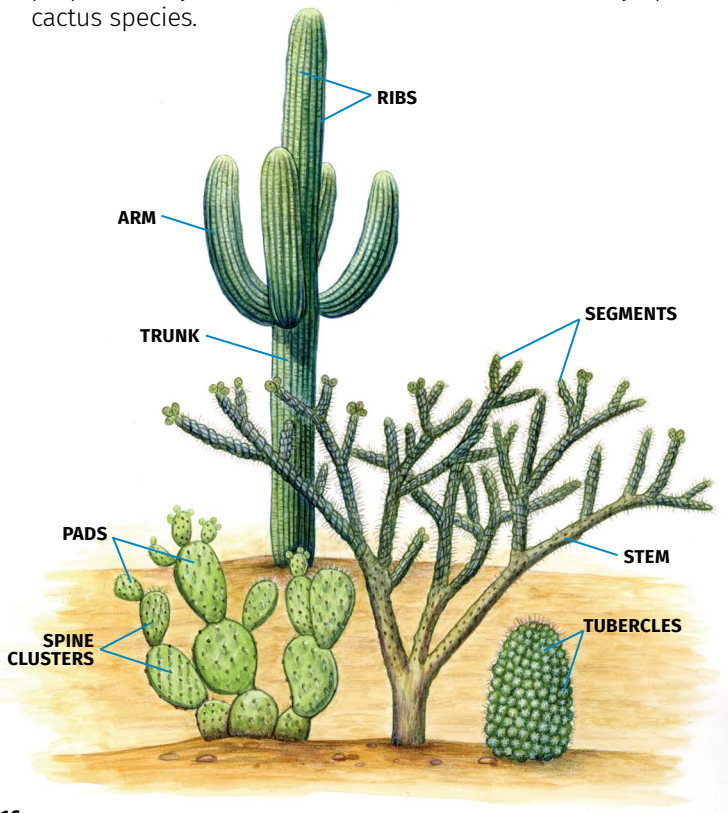
pg. 219

TABLE OF CONTENTS

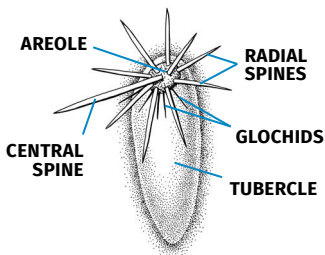
Introduction	6
Sample Pages	19
The Cacti	
Pincushion	23
Pineapple-Beehive	43
Hedgehog	71
Barrel	99
Prickly Pear	115
Cholla	163
Cereus	207
Organ Pipe	211
Senita	215
Saguaro	219
Cactus-like Species	222
Glossary	226
Checklist/Index	229
Photo Credits	232
About the Authors	234
Rulers	236

CACTUS BASICS

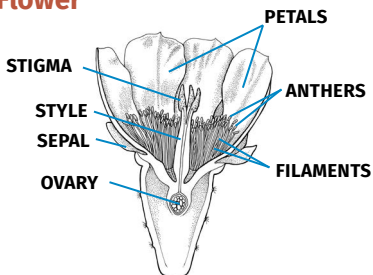
It's easier to identify cacti and discuss them when you know the names of their different parts. For instance, it is more effective to use the word "glochids" to indicate hair-like spines than to try to describe them. The following illustrations point out the basic parts of various cacti. These are for informational purposes only and should not be confused with any specific cactus species.



Spine Cluster



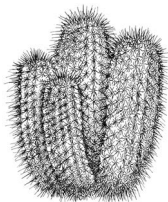
Flower



STIGMA + STYLE = **PISTIL**

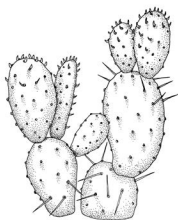
ANTHERS + FILAMENTS = **STAMENS**

Stems



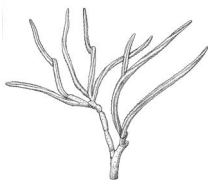
Cylindrical Stems

pincushion, pineapple-beehive, hedgehog, and barrel



Segmented Stems

prickly pear and cholla



Stick-like Stems

Desert Night-blooming Cereus



Columnar Stems

Organ Pipe, Senita, and Saguaro



spines



flower



Spinystar

Escobaria vivipara

PINEAPPLE
BEEHIVE



Size: H 1–8" (2.5–20 cm); W 1–4½" (2.5–11 cm)

Shape: low-growing round or cylindrical cactus with a flat top; in winter, becomes more flat-topped and may be over halfway underground

Stem: 1–24 green stems, each covered with spirals of large conical bumps (tubercles) grooved on upper surface and tipped with overlapping spines that obscure the stem color

Spines: white or pinkish gray with dark reddish brown tips, ¾–1" (.7–2.5 cm) long

Spine Clusters: 3–14 rigid central spines that point outward, upward and downward, and a circle of 10–40 stiff, needle-like radial spines around the center, pressed closely against the stem

Flower: frilly pink flowers in dense bouquet at the top of stem; each bloom, 1–2½" (2.5–6 cm) wide, has orange-yellow male flower parts (anthers) and white female flower parts (stigmas)

Blooming: April–August; 6 days after the first summer rain

Fruit: juicy green pod, ½–1" (1–2.5 cm) long, remaining green but tinged with purplish marks when ripe, containing reddish brown, pitted seeds



Zone/Habitat: all life zones from 3,000–8,900' (915–2,710 m); low hills, mountaintops, open areas, among grasses or pines, under bushes

Range: eastern two-thirds of Arizona, ranging from the border with Utah south to Mexico; includes the area from just west of Nogales to east of Tucson and Phoenix, then northwest through Wickenburg to the Nevada border

**Spinystar**

tubercles not in vertical rows

**Needle-spine Pineapple**

Cactus (pg. 59)
tubercles in vertical rows

**Needle-spine Pineapple**

Cactus (pg. 59)
red, not white, stigmas

Compare: Needle-spine Pineapple Cactus (pg. 59) has tubercles in vertical rows, unlike the tubercle spirals of Common Beehive. When young, Common Beehive can be easily mistaken for Needle-spine, but Needle-spine lacks a groove on the upper side of its tubercles that the mature Common Beehive has.

Notes: The most widespread and abundant cactus in its genus which was named after the Mexican naturalists Romulo and Numo Escobar. Species name, *vivipara* is Latin for “sprouting from the parent plant”, referring to the production of new buds on old stems that drop off and can become new plants.

Spinystar resembles pincushions, differing from them by flower position and tubercle grooves. Named for its spiny appearance; however immature plants lack the longer, outward-pointing central spines of the mature plants, having only white radial spines.

Previously lumped in with the beehive cacti in the genus *Coryphantha*, Spinystar was then called Common Beehive Cactus for its abundance and wide range. Ranges from Canada to northern Mexico, as far west as Nevada and as far east as Oklahoma. May bloom at different times across its range in Arizona, due to the patchy distribution of summer rains. Fruit forms and ripens 2-5 months afterward. It is extremely cold hardy to -8 °F (-22 °C) and is one of only four cacti species that grows in Canada.



spines



flower



Nichol Hedgehog

Echinocereus nicholii

HEDGEHOG



Size: H 8–12" (20–30 cm), some up to 18" (45 cm)

Shape: large loose clumps of 16–30 cylindrical stems

Stem: multiple upright green stems; each stem, 2½–3½" (6–9 cm) wide, with 10–13 vertical ribs with dense spines that mostly obscure the stem color

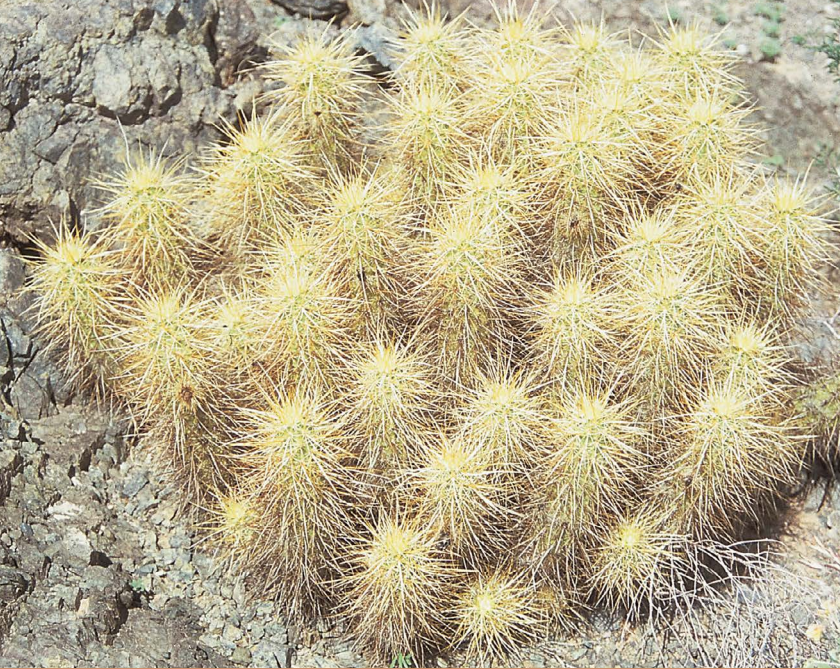
Spines: golden yellow, ½–3" (.5–7.5 cm) long

Spine Clusters: dense clusters of straight, needle-like spines; each cluster has 4–6 outward-pointing central spines (1 is white, flattened, and pointing downward) and 8–12 radial spines pointing outward

Flower: 1 to several pink flowers on the upper half of stems; each narrow, cup-shaped flower, 1½–2½" (4–6 cm) wide, has petals with darker pink mid-stripes around pale yellow and green flower parts

Blooming: March–April

Fruit: spiny oval green pod, turning bronze when ripe, 1–1½" (2.5–4 cm) long, edible, with very juicy white pulp containing many small black seeds; not easily detached from the stem, even when ripe



Zone/Habitat: desert scrub between 1,000–3,000' (305–915 m); open areas, flats, gravelly slopes, bajadas, granite rock outcrops

Range: small portion of southern Arizona, from Lukeville on the Mexico border north through Ajo and northeast almost to Marana



Nichol Hedgehog
golden yellow spines



Engelmann Hedgehog
(pg. 95)
multicolored spines



Engelmann Hedgehog
(pg. 95)
red fruit

Compare: Resembles Engelmann Hedgehog (pg. 95), which has multicolored spines and red fruit, not all-yellow spines and bronze fruit like Nichol Hedgehog.

Notes: This showy golden cactus with its pink flowers is a favorite of desert landscapers and is frequently seen in cities and towns throughout the Southwest. Also called Golden Hedgehog, with cultivated varieties sold under that name in nurseries. Its spines appear to glow from within when backlit by the sun.

Needs little water, but tolerates colder temperatures poorly. The spiny fruit has a juicy white pulp and is not easily detached from the stem when ripe. The Pima People ate the fruit pulp raw after carefully removing the spines.

In the wild, this species is found only in Arizona and Mexico. In the northern Mexican state of Sonora, near Guaymas, there is a subspecies that has crimson flowers. Nichol Hedgehog is most easily seen in the Silverbell Mountains of Ironwood Forest National Monument, a 129,000-acre (51,600 ha) preserve known for its numerous petroglyph or rock art sites. It is also common in Organ Pipe Cactus National Monument and Cabeza Prieta National Wildlife Refuge.



glochids



flower



fruit



Beavertail Prickly Pear

Opuntia basilaris

PRICKLY
PEAR



Size: H 3–16" (7.5–40 cm)

Shape: low-growing, spreading, trunkless clumps, 3–6' (0.9–1.8 m) wide, of flat segmented stems

Stem: multiple bluish green-to-purple stem segments (pads); each pad, 2–9" (5–23 cm) long and 2–5" (5–13 cm) wide, is thick, shaped like a beaver tail, and covered with tiny soft hairs; pads become wrinkled in drought and can make the cactus look dead

Spines: usually spineless, but sometimes a few yellow spines, 1/8–1" (0.5–2.5 cm) long

Spine Clusters: diagonal rows of 10–16 circular areas (areoles) across each pad with hair-like yellow or reddish brown spines (glochids) in small round tufts in each areole

Flower: cup-shaped, dark pink flowers on upper edges of pads; each blossom, 3" (7.5 cm) wide, has many overlapping petals around a magenta and pale yellow center

Blooming: February–May; over a period of several weeks

Fruit: spineless, egg-shaped, purplish green pod, 1–1½" (2.5–4 cm) long, covered with tiny velvety hairs, dries to tan when ripe and contains large yellowish tan seeds



Zone/Habitat: desert scrub, oak/pinyon pine/juniper woodlands below 6,000' (1,830 m); open areas, among creosote bushes, rocky hillsides, rock crevices, along washes, valleys, canyons, sandy to gravelly soils

Range: western edge of Arizona, from the Mexico border north through Cibola to the Utah border and as far east as Chino Valley; also a small area of north central Arizona, from the North Rim of the Grand Canyon through Page to the Utah border

Beavertail Prickly Pear

Beavertail Prickly Pear
low-growing, spreading
clumps



Santa Rita Prickly Pear
(pg. 147)
taller plant with fewer
glochid tufts in each row



Santa Rita Prickly Pear
(pg. 147)
yellow flower

Compare: Much like the nearly spineless Santa Rita Prickly Pear (pg. 147) in pad color, but the yellow-flowered Santa Rita has fewer glochid tufts in each row across its pads and is taller and more upright, often with a central trunk.

Notes: A sprawling succulent that seldom grows higher than the length of two pads. The bluish green spineless pads, velvety hairs, and prickly glochids make it easily recognizable. Species name *basilaris*, or “stretching from the base,” refers to the paddle-shaped pads in a beaver tail design. In Arizona, the most common variety has rounded or egg-shaped pads.

A favorite landscaping plant in Phoenix and Tucson. Pads turn purple when stressed, making it even more attractive. Grows in the hottest, driest habitat of any prickly pear species in Arizona and is easy to cultivate. To propagate, cut a pad, place in shade for a couple days allowing it to dry and seal, then plant it (cut end down) in a mixture of sand and soil.

Handle the pads carefully! Glochids detach easily and a slight brush against them embeds many nearly invisible barbed spines into skin, where they are hard to see and remove. Embedded glochids impart a burning, prickly sensation. Best removed from skin by placing sticky tape on the affected site and pulling up.



spines



flower



fruit



Desert Night-blooming Cereus

Peniocereus greggii

CEREUS



Size: H 2–6½' (.6–2 m)

Shape: upright or sprawling cactus with long, slender, sometimes branching stems

Stem: 1 to a few, grayish green-to-grayish brown stems, 1⅓–4' (40–122 cm) long; each woody, hollow stem, ¾" (2 cm) wide and nearly square, has spine clusters along 4–6 ribs

Spines: yellowish white to gray to black, less than ¼" (.6 cm) long

Spine Clusters: widely spaced clusters on ribs; 11–15 tiny spines per cluster; spines point downward, pressed closely against the stem

Flower: 1 white blossom at the tips or sides of upright stems; each showy, fragrant flower, 2–4" (5–10 cm) wide, has long pointed petals (outer petals turn downward) around many cream flower parts

Blooming: May–July; flowers open at dusk and remain open only for a single night, until sunrise; plants in a population bloom simultaneously 3–5 times during late May to early June

Fruit: pear-shaped, bright red pod, 2½–3½" (6–9 cm) long, smooth and shiny, with sparse short spine clusters; pod turning dark brown when ripe with sweet, juicy pulp containing many tiny black seeds; fruit remains on the stem for a few months



Zone/Habitat: desert scrub and grasslands from 1,000–4,000' (305–1,220 m); flats, along washes, among creosote bushes, bursages, under mesquite and ironwood trees, silty or sandy limestone or lava soils

Range: much of the southern half of Arizona, except for the far western edge of the state



Desert Night-blooming Cereus

square stem with 4 ribs



Dahlia-rooted Cereus

round stem



Dahlia-rooted Cereus

smaller flower

Compare: Often mistaken for creosote bush branches. The only similar cactus in the United States is Dahlia-rooted Cereus, found very rarely in southern Arizona along the border with Mexico. The smaller-flowered Dahlia-rooted has 6–9 ribs on a rounded stem, not 4–6 ribs on a square stem like Desert Night-blooming Cereus.

Notes: One of fifteen *Peniocereus* species and one of two in Arizona. Stems appear dead almost year-round. Blends in with debris under branches of protective shrubs. Can grow as long as 10 feet (3 m) if supported by branches of another plant, but rarely noticed until the showy, fragrant flowers open at dusk for the night. The white glow of the blossoms attracts hawk moths, and its sweet fragrance brings in honeybees and native bees the next morning. The sucrose-rich nectar of a single flower provides enough energy to a hawk moth for 3–20 minutes of hovering flight. Sometimes called Queen of the Night for its beautiful flowers.

This cactus has a large underground tuber that can grow as big as a basketball and weigh from 15–90 pounds (6.8–41 kg). Historically, Indigenous Peoples dug the tuber to use for food and treating illness. Today, large populations of this cactus have been exterminated by collectors. Some elderly residents of Tucson talk of seeing as many as 100 blossoms open on a single cactus, before collectors removed the largest plants. Propagated easily from short stem cuttings and from seed.



spines



flower



immature fruit



Organ Pipe Cactus

Stenocereus thurberi

ORGAN PIPE



Size: H 9–20' (2.7–6.1 m), some up to 40' (12.2 m)

Shape: large clusters of tall columns of stems branching from the base

Stem: yellowish green or dull green stems, each 8" (20 cm) wide, with 15–19 rounded vertical ribs lined with spines

Spines: reddish brown, aging to gray with dark tips, 1½–2½" (1–6 cm) long

Spine Clusters: non-overlapping clusters spaced ½" (1 cm) apart on ribs; each cluster has 11–14 spines that look alike yet can be different lengths, such as the longer central spines and shorter radial spines, and also has felt-like reddish hairs

Flower: white blossoms in a loose ring below top of stems; each funnel-shaped flower, 2½–3" (6–7.5 cm) wide, has petals with pink midstripes and a pale yellow center; bloom is held by a long green tube of short, scale-like, red-tipped green leaves (bracts)

Blooming: April–July; flowers open after sunset and close soon after sunrise the next morning

Fruit: spiny green pod, 2–2½" (5–6 cm) long, with a pinkish tuft of dry flower parts on top; fruit loses its red and black spines and turns red when ripe, containing sweet red pulp with glossy dark brown seeds

immature Organ Pipe Cactus



Zone/Habitat: desert scrub below 2,000' (610 m); bajadas, ridges, south-facing rocky hillsides

Range: south central Arizona, including Lukeville and Ajo to the west and Marana to the east



Organ Pipe Cactus
pink-tinged flower



Saguaro (pg. 219)
waxy white flowers



Senita Cactus (pg. 215)
beard-like gray spines
top older stems

Compare: Organ Pipe has pink-tinged flowers, not waxy white flowers like Saguaro (pg. 219). Much like Senita Cactus (pg. 215), but lacks beard-like gray spines on its upper stems.

Notes: The Organ Pipe Cactus National Monument in southern Arizona was established to protect this unique species. Branches into several dozen columnar stems that taper to rounded tips, resembling organ pipes. Limited from ranging farther north by its susceptibility to temperatures below 25 °F (-4 °C). Stems in Arizona are often irregularly segmented due to tip damage caused by cold weather. Widespread in warmer Mexico.

Blossoms open in summer and are pollinated by the nectar-feeding Long-nosed Bat, which literally grabs its sweet drinks on the fly. The Tohono O'odham People, an Indigenous tribe residing east of Organ Pipe Cactus National Monument, gather the fruit to make a syrup for jelly and wine. They also dry the fruit, saving the pulp and seeds to eat during winter months.

A young Organ Pipe plant needs shade and shelter from the cold and hungry animals. Larger “nurse” plants, such as ironwood and palo verde trees and bursages, provide this defense for young seedlings. Mature Organ Pipe cacti have a large shallow system of roots that absorbs all available water, which in turn kills the nurse plant—a poor reward for such protection.

Learn about and identify cacti in Arizona

Full-page photos and descriptions make this the best guide to Arizona's cacti

- more photos per cactus than any other field guide, making visual identification quick and easy
- range maps and close-ups of spines, flowers, and fruit to aid identification
- shape icons that help narrow your search
- fascinating natural history about 50 cacti species

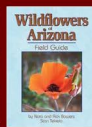
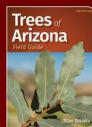
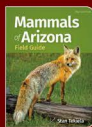
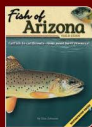
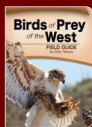
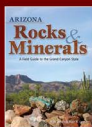
This new edition includes new photographs, updated text, and even more of Rick and Nora's expert insights.



About the Authors

Nora Mays Bowers is a photographer and writer, and Rick Bowers is a photographer, naturalist, and writer. Their credits include *Birder's World Magazine* and *National Geographic*.

IDENTIFY NATURE WITH THESE ARIZONA FIELD GUIDES



PUBLICATIONS
Adventure
an imprint of AdventureKEEN

NATURE / CACTI/ ARIZONA

ISBN 978-1-64755-397-5



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