

## Desert Rose, *Adenium obesum*

Desert rose, mock azalea, impala lily, and Sabi star are amongst the common names of a plant available from a mega-store near you. Long grown by succulent plant enthusiasts because of its bizarre shape, beautiful flowers in colors from deep red to pure white, and its tolerance of occasional neglect, adeniums are rapidly becoming popular horticultural subjects and houseplants worldwide.

### The Rose That Isn't

For one thing, it has no thorns. But beyond that, it is totally unrelated to the rose family and doesn't really even look like one. So much for common names. The desert rose is scientifically known as *Adenium obesum*, or the fat adenium, referring to its grossly thickened trunk. It is in the Asclepiadaceae, or milkweed family, which, besides our



An *Adenium* flower.



An *Adenium* plant.

garden milkweeds (*Asclepias* spp.) includes the common garden periwinkle, oleander (frequently used as floriferous landscape shrubs in mild climates such as Florida and southern California), the spiny Madagascar palm (which, of course, isn't a palm at all), the fragrant frangipani, or *Plumeria* which is grown worldwide in tropical climates, and a myriad of African succulents with bizarre, often stinky, star-shaped flowers, collectively referred to as stapeliads.

*Adenium* is a small group of plants known from dry climates in sub-Saharan Africa and the very southern part of the Arabian Peninsula. Scientists debate how many wild species there are of *Adenium*. The most conservative view is that there is only one species and a handful of subspecies or varieties. But wild adeniums vary dramatically from location to location, from short fat trees that resemble a small baobab to quite small shrubs arising from huge tuberous roots. One thing that they all have in common is that they live in relatively dry climates (or at least areas that have extended annual dry seasons) and therefore they have adopted the succulent way of life. That is, they store water in their soft, swollen roots and stems to allow them to survive through periods of drought. Another contingent of

taxonomic experts concludes that the subspecies warrant species status, and further subdivide these into additional named varieties. A complete list can be found below; all are in cultivation and available through nurseries that specialize in cacti and other succulent plants.

But the most commonly available forms of the desert rose are *Adenium obesum* (using the name in its narrow sense) and its various cultivars and hybrids. These are showing up in garden centers and also in large chain hardware and discount stores here in Wisconsin and throughout the country. The most commonly available plants currently are grown from seed and are very similar to the true species found in nature. Young plants have an inflated trunk, sometimes called the caudex. From this fattened caudex arise several slender but soft and succulent stems which are sparsely branched in youth. Even young plants 2-3 years old and 6-8 inches tall can put on a beautiful floral display, with the pink to red flowers arising from the tips of the stems.

There has been considerable work done in selecting horticultural cultivars, primarily for flowering characteristics. Other cultivars have been developed through hybridization, using other species to cross with *A. obesum*. These named cultivars must be propagated from cuttings, which do not have a caudex, but which do eventually form thickened roots and trunk. To speed the process, cuttings are often grafted onto the fat bases of *A. obesum* seedlings. Flower colors range through various shades of pink and red, to bicolor flowers with white, and, recently, pure white forms. Purples, yellows, and even oranges are now being developed as either solid colors or as components of complex patterns. True *Adenium obesum* normally blooms in spring and summer continuously for many weeks. Improved cultivars bloom almost continuously if given proper care.



*Adenium obesum* blooming.

In nature, *Adenium obesum* is quite variable but can form a small, thick-trunked tree or large shrub. However, its size can be restricted by pot culture, and 20-year-old plants can be quite happy in a 10" pot, being only a foot or two tall. Because their size can be restricted, and because of the unusual shapes, they are becoming increasingly popular subjects for tropical or succulent bonsai. Given the right conditions, they can be fast-growing and rewarding houseplants in most any climate.

### Cultivation

Adeniums are relatively easy to care for as long as you think of your plant as actually being two quite different plants with different requirements at different times of the year. In the warmth of summer, while in full growth, they should be treated as a tropical plant, watered abundantly and frequently and fertilized with a fair amount of generosity. In the winter time they need a dry rest, and should be treated like a cactus, with only light occasional waterings during warm bright days.

Like most all succulents, adeniums, especially when dormant, are susceptible to root rot (which can



*Adenium obesum*, 30 years old and 20 inches tall. The photo was taken as the plant was beginning new growth and flowering in the spring (mid March).

rapidly kill the entire plant) caused by prolonged, overly wet soils. Therefore, they should be potted in a well-drained soil mix. Any light commercial mix can start as a base, but should be augmented with about 1/3 to 1/2 drainage material such as coarse (screened and washed) sand, clean poultry grit, gravel, or sponge rock (such as Perlite). If you use a peat-based mix, you should repot into fresh soil about every two years. Any type of pot (clay, plastic, or ceramic) is acceptable, but must have good drainage (be sure the saucer doesn't retain water). The pot should only be a bit larger than the size of the root mass; significant overpotting can result in soil moisture retention and root rot. However, these plants are easily potbound, which restricts overall growth. So every year or two increase the pot size until the plant achieves the desired size. Another point to remember is that these plants can make MASSIVE roots. They are capable of breaking through the sides of plastic and even thin-walled ceramic pots. Many growers use a relatively shallow, bowl-like pot somewhat larger than the root system would dictate. The shallow nature of the pot allows for more rapid drying of the soil mass, while providing room for root expansion.

Again, like most succulent plants, adeniums need bright light for normal growth and optimum flowering. Spring growth in Wisconsin normally starts in February as soon as the days begin to lengthen. Once growth starts they should be in the brightest possible location. After all threat of frost, established plants thrive outdoors in the Wisconsin summer. They love our summer thunderstorms and full, day-long sunlight is ideal. If kept too shaded during the growing season, adeniums will develop unnatural, weak growth and will not bloom. All adeniums are very sensitive to frost and cool weather. As evenings begin to cool in the fall, plants should be brought back indoors and placed in a bright location where the temperature will stay above 50F. Full sun is not necessary for dormant plants. For those folks with greenhouses, adeniums will thrive under greenhouse conditions throughout the year, but seem to enjoy at least a few good warm, soaking summer rains. But remember, these are drought-adapted plants and it's not necessary to hire a plant-sitter to water them while you are away on your two week summer vacation.

Provide ample water during the growing season. If your soil is well drained and the weather is warm and sunny, the roots rapidly absorb soil moisture which is lost through normal transpiration. In well drained soils during active growth in the heat of midsummer, plants can literally be watered daily. Adeniums are becoming favorite landscape plants in tropical parts of the world such as Asia and southern Florida, where rains can be heavy and almost daily through the summer; the plants thrive under these conditions.

**Adeniums do not like to be in wet soil during cool periods.** Restrict water a bit during cooler, cloudy periods, and cut back on watering as fall approaches. *Adenium obesum* can be kept in leaf almost

throughout the year, especially under ideal conditions such as in a warm greenhouse. In this case, light watering is acceptable, especially on warmer days, perhaps every week or two throughout the winter; be sure to allow the soil to dry for several days between waterings. Some species, such as the fairly common *A. multiflorum*, have an obligate deciduous rest period for 3-4 months in winter. Be particularly careful when watering leafless plants; a monthly watering from October through February is adequate. Some adenium specialists believe that there is better flowering after a totally dry dormant period. Adeniums can be fertilized weekly during the growing season, using any good quality balanced houseplant fertilizer, but only at half the recommended label rate.



**When given ideal conditions, plenty of root room, and a long growing season some Adeniums can grow quite large and colorful, such as these in an Arizona greenhouse. But their size can be kept in check by keeping them under-potted.**

There are a few pests that attack adeniums. Spider mites and mealybugs are the worst problems but are readily treated with normal remedies. These pests are more of a problem if plants are grown indoors or in a greenhouse than if grown outdoors where natural controls (predators, rain) are so important. Mites can be particularly bad on some species and cultivars, building up very rapidly and resulting in total leaf

drop. Affected plants will rapidly re-leaf once the mites are controlled. Plants grown outdoors during the summer can occasionally get colonies of large yellow aphids with black legs. This is the same aphid that commonly attacks wild and garden milkweeds.

### Size Control and Pruning

In nature, *Adenium obesum* can assume the proportions of a large shrub or small tree. However, they live quite happily if their size is restricted, and they will bloom faithfully. Size can be restricted by under-potting as discussed above. The plant illustrated is about 30 years old, is about 20 inches tall, and is in a 9 inch pot. Had this been planted with plenty of root room and given generous treatment, by now it could easily fill a 20 inch pot.

Many adeniums branch rather sparsely and, even when grown hard, can look leggy after time. Judicious pruning will result in better branching and a fuller-looking plant. Because the flowers are developed at the ends of the stems, a more fully-branched plant will also produce more flowers.

### Propagation

Adeniums are generally not self-fertile; it usually requires two separate clones to produce viable seed. They have a complex flower structure and are a bit difficult to pollinate by hand until you learn the trick. However, fresh seeds germinate rapidly, usually in 3-7 days, and seedlings tend to be vigorous. Seeds are occasionally available from seed dealers who specialize in tropical or exotic plants. Another occasional source is the Seed Depot of the Cactus and Succulent Society of America (<http://shop.cssainc.org/seed-depot.html>); you need not be a member to use this source.

*Adenium* cuttings can be rooted, and this is the only way to propagate hybrids that are true to their name. Cuttings should be dipped in rooting hormone and placed in a well-drained rooting medium (such as Perlite) and kept watered. Results are better in an enclosed area of high humidity or a mist chamber.

### The Species and Varieties

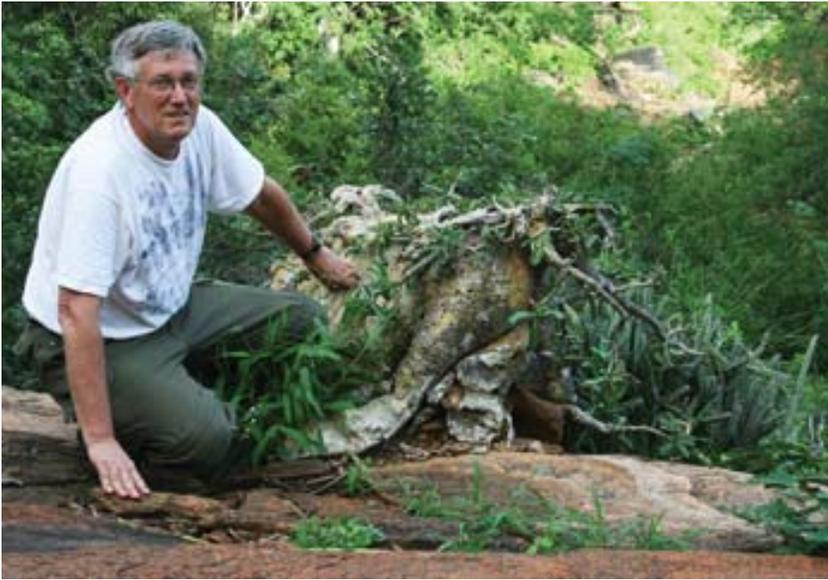
As noted above, the experts disagree about what constitutes a species in the genus *Adenium*. What is clear is that there are a variety of quite different forms that occur in different locations in Africa and on the Arabian Peninsula and the adjacent island of Socotra. Most nurseries recognize several species and forms. The following list is derived from the most recent (2009) book on the subject, by Dimmitt et al (see Additional Information below).

- *Adenium obesum* is widespread and variable in its natural habitat. It occurs in a broad band across sub-Saharan Africa from Senegal and Mauritania in the west eastward to Sudan and Kenya. Its variability in nature is reflected by its variability in cultivation. It has a relatively long summer blooming period and can be kept in growth through winter in a warm and bright location. It is the most widely

Caution! All adeniums have highly toxic sap. In Africa the sap has been used to make poison arrows for hunting game. On the island of Socotra where introduced goats have decimated much of the native vegetation, the adeniums are left totally untouched. Use care when handling and pruning plants. Do not get sap in your eyes. If you get sap on your skin, wash promptly. Commercial propagators handle hundreds of plants daily without problems; however, precautions are prudent. If you have pets that are prone to chewing on your plants, it is likely that they will forever ignore these after the first experimental taste, but to be safe, keep the pets and adeniums separated.



Seedpods of *Adenium multiflorum* in South Africa.



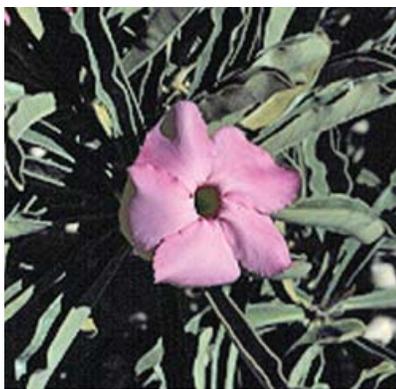
The author with a very old *Adenium obesum* with a large, boulder-like caudex (L) and a plant at the beginning of the flowering season in southern Kenya (R). Note the proliferation of developing buds.

available species in cultivation and has been used as one of the parents in many of the hybrids. The flowers are variable in size, but generally about 2 inches in diameter. The margins of the petals vary from pink to deep red (see photos), and gradually fade to white near the throat. Young plants from seed have a distinctly fattened caudex and the plant eventually develops a very stout trunk. Rooted cuttings will form a very thick trunk in time. This is a highly desirable and commonly available species.

- *Adenium multiflorum* is often listed as a variety of *A. obesum*, but is quite different in many ways. It is probably the second most commonly available form. It generally has a more slender trunk than *A. obesum*, and it has an obligatory, deciduous, winter dormancy. It generally blooms for 3-4 months in winter, while leafless. The flowers are abundant and possibly the most striking of the entire group. The petals are edged in a bright red band of varying



*Adenium multiflorum* planted at a rest camp in Kruger National Park, South Africa (L) and closeup of the bicolored petals (R).

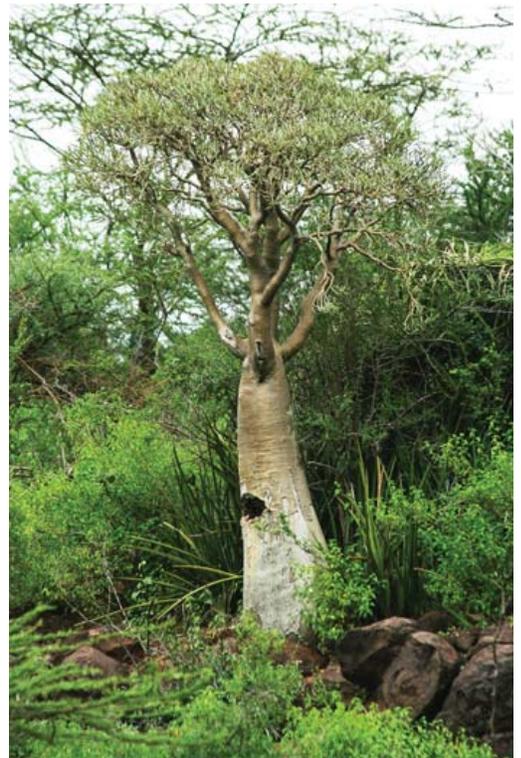


*A. swazicum* 'Perpetual Pink'

widths which is sharply delimited from the white inner parts. It comes from Mozambique and neighboring countries in southeastern Africa.

- *Adenium swazicum* is commonly available from specialist nurseries. It comes from Swaziland and adjacent areas in eastern South Africa and Mozambique. It is of easy cultivation but is very susceptible to spider mites. The flowers are uniform in color, varying from pale to deep pink to pinkish purple. Blooming is normally for a few months in late summer and fall, but the cultivar 'Perpetual Pink' has a longer blooming period. The soft succulent stems tend to droop, especially in plants that are too shaded. Larger plants have massive roots and thick trunks.

- *Adenium somalense* is another variable species. It occurs from Somalia south into Kenya and Tanzania. In Somalia and adjacent areas of Kenya this plant becomes a small tree, to 15 feet tall, with a massively swollen trunk. In other areas, it is more shrubby and similar to *A. obesum*. The flowers are a bit smaller but otherwise similar to *A. obesum*.
- *Adenium crispum* has sometimes been referred to as a subspecies of *A. somalense*, but recent authorities believe they are quite different species. It is native to sandy desert soils along the coast of Somalia. It is a beautiful miniature form that develops a very large thickened underground caudex, from which grow a few slender stems, usually no more than 1 ft. tall. The flowers are smaller than most other adeniums, but produced in abundance, and with beautiful red and white striping. In cultivation the subterranean tuber is usually raised for aesthetic purposes; it makes a desirable bonsai subject. A few succulent nurseries carry this form.

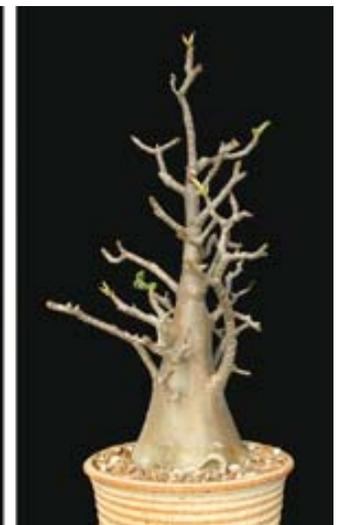


*Adenium somalense* at Lake Bogorio in the Rift Valley of western Kenya. In great age this species can become a small, fat-trunked tree. Note the lush vegetation in the rainy season, indicating that it can tolerate much rain while in growth. But the soil is rocky and well-drained.



*Adenium crispum* is a dwarf species from coastal Somalia. This plant is in a 7" pot and is shown during its winter dormant period. The large basal caudex is actually part of the root system which in nature would be totally underground. In cultivation the caudex is raised for aesthetic purposes and to reduce the chance of root rot. This particular plant is from a population in Tanzania and has a somewhat different flower than the Somali form.

- *Adenium oleifolium* is another smaller species, with an underground caudex and a few stems to two feet tall. It comes from the Kalahari Desert of southern Botswana, and northern Namibia and South Africa. It is a slow growing species with relatively small flowers. It is available in the nursery trade but not often cultivated.



Two forms of *Adenium arabicum* occur; these will probably eventually be considered as separate species. L: the short form develops a large but fairly globose above-ground caudex with numerous slender upright stems. This plant is in an 8" pot. R: the tall form develops a central trunk and in nature these can become small trees. This plant is in a 10" pot. Both forms go dormant in the winter time and start to develop new flower and leaf buds as the days begin lengthening in late January.

- *Adenium arabicum*, as its name suggests, comes from the Arabian Peninsula, especially Saudi Arabia and Yemen. This is somewhat variable and it is possible that

there are actually two different plants coming from this area. One form, from Saudi Arabia, grows upright and can be up to 12 feet tall and is somewhat similar to *A. somalense*. The other form is low, with somewhat reclining stems branching from a spherical basal caudex that can be as much as 3 ft. in diameter! Both forms are available from succulent plant nurseries.

- *Adenium boehmianum* is the most western species, coming from northwestern Namibia and southern Angola. This is also a slow-growing species, and must be several years old before flowering, but young plants can flower when only 5-6" tall. The flowers are usually of a uniform pale pinkish-purple. This is also available, but not frequently grown. In nature most plants are small, sparsely branched shrubs to 2-4 ft tall, with relatively thin stems, but occasionally very old plants can be found that have developed into small trees.

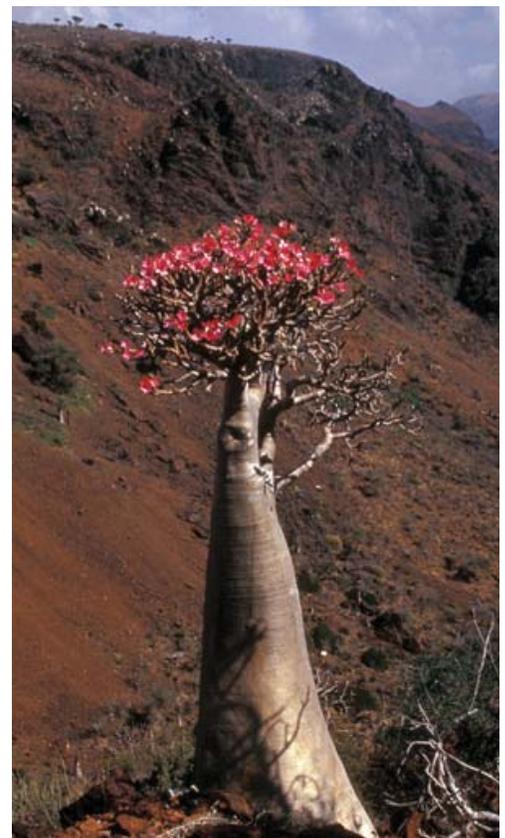


**L: Two young seedlings of *Adenium boehmianum* in northern Namibia. This is one of the most slender-stemmed species. Note how prolific flowering can be in young plants. Also note that the plant on the left has very pale, almost white, petals. C: flowers of *Adenium boehmianum* from Namibia. R: An incredibly old plant of *Adenium boehmianum* in northern Namibia. Note the profusion of flowers.**

- *Adenium socotranum* is currently the rarity of the group. It originates only from the isolated and often inaccessible (to Westerners) island of Socotra in the Indian Ocean south of the Arabian peninsula and east of the Horn of Africa. This is the giant of the group, with massive trunks up to 10 ft tall and 8 ft in diameter! For many years Socotra hosted a Soviet naval port and was off limits to most everyone, restricting the availability of plants and seeds. Now the local authorities are very protective of the natural resources and it is illegal to collect plant material of any type. *Adenium socotranum* occurs by the thousands in nature, but relatively few plants exist in cultivation. However, recent efforts to propagate this species are being successful and seedlings are occasionally available on eBay and from specialist succulent nurseries; they tend to be a bit pricey.

### Cultivars and Hybrids

Up until recently, relative few horticulturists were selecting improved cultivars or doing hybridizing. Several nice named cultivars are currently in the trade (see photos). In the past 10 years or so many nurseries in Asia, especially Taiwan and Thailand, have been producing dozens (maybe hundreds) of named cultivars. They are



***Adenium socotranum* is the giant of the group, and is restricted to the island of Socotra. It is also the rarest in cultivation. Photo by Peter Gamarano.**



**Adenium cultivars: (L) 'Red Everbloomer'; (C) 'Crimson Star' and (R) 'Endless Sunset'.**

selecting for rapid growth, sturdy plant body, lengthened flowering time, larger flowers (to 4 inches!), and variety in flower color and form. U.S. nurserymen are importing such plants for propagation and to use in their own breeding programs. In recent years, pure-white flowered forms have become available, as well as various shades of pink and red. Many new hybrids have amazing flowers including bicolors and tricolors, striping, and complex patterning. With this tremendous diversity on the horizon, it is likely that the desert rose will become an even more popular houseplant.

### Sources of Plants



**Adenium plants for sale at a local retailer.**

Nicely established plants are becoming more commonly available at those garden centers that stock a good assortment of cacti and other types of succulent plants. They are also showing up at large national chain discount and hardware stores, including here in Wisconsin. Sometimes they are marketed outside of their flowering period, so you may have to look closely at the plants and labels (look for Desert Rose), or ask a knowledgeable sales person. Those that are most commonly available are standard *Adenium obesum*.

To get the more unusual species and the newer hybrids and cultivars (such as the pure reds or pure whites) it is necessary to order through a nursery that

specializes in succulents or exotic plants. Many such nurseries can be found by doing a web search, but here are a few reliable ones that stock a reasonable assortment of species or cultivars:

- Arid Lands at <http://aridlands.com/>
- Bob Smoley's Gardenworld at <http://www.bobsmoleys.com/>
- Living Stones Nursery at <http://www.lithops.net/>
- Miles' To Go at <http://www.miles2go.com/>
- Out of Africa at <http://www.out-of-africa-plants.com/>

– Dan Mahr, University of Wisconsin - Madison

*Brand names and commercial businesses are listed only for reference. Such references are not intended as an endorsement by the University of Wisconsin - Extension over similar brands or businesses.*

## Additional Information:

- An Adenium website — an excellent site with all species discussed and illustrated with color photos. At the home page, click on “Articles on Adeniums” for a series of articles written by adenium breeder Mark Dimmitt of the Arizona Sonora Desert Museum and Chuck Hanson, founder of Arid Lands Greenhouses. This series of articles originally appeared in the Cactus and Succulent Journal, produced by the Cactus and Succulent Society of America. The various species are discussed in detail with lots of excellent photos. Parts of the series focus on cultivation and favored cultivars. At [adenium.tucsoncactus.org/index.html](http://adenium.tucsoncactus.org/index.html)
- Siam Adenium — a nursery in Thailand with a great diversity of incredibly amazing cultivars that are being developed. No recommendation on reputability of the company or the complexity of the ordering process from Thailand! At [siamadenium.com/](http://siamadenium.com/)
- The best book on adeniums is entitled *Adenium: Sculptural Elegance, Floral Extravagance* by Mark Dimmitt and colleagues, published in 2009 and available through Amazon.com.