

Boston Fern – A Natural Air Filter for the Home

by Elaine Pugh, Fairfax Master Gardener

Nephrolepis exaltata, the Boston Fern, with its long, delicate fronds, is commonly grown as a houseplant in our area, either in a hanging basket or on a pedestal. Boston Fern has been credited for its ability to help remove indoor air pollutants. It is native to Florida, West Indies, Mexico, Central America, South America, Polynesia and Africa. *N. exaltata* is also known as the ladder or sword fern. *Nephrolepis* comes from Greek words *nephros* meaning a kidney and *lepis* meaning a scale. *Exaltata* is Latin for very tall or lofty.

Ferns, in the Polypodiopsoda class, are vascular plants that reproduce by means of spores. They have complex leaves that uncoil from fiddleheads into fronds. The Boston Fern grows with an upright spreading habit generally 2 to 3 feet (60 to 100 cm) in height and width. Dwarf compact cultivars as small as 10 inches (25 cm) can be purchased for smaller spaces. Fronds initially grow upward but arch gracefully with age. On a typical frond, *N. exaltata* has a broad frond with alternate leaflets (pinnae) on either side of the midrib. The pale-to-deep green frond can grow up to 4 feet long and 6 inches wide. Each leaflet is generally deltoid in shape, with slightly serrate, undulating edges. The leaves appear to wrap around the midrib. On the underside of the frond, the Boston Fern produces two rows of round sori clusters of spores that appear as rows of dark brown to black dots.



photo: North Carolina Cooperative Extension

Boston Fern form

The key ingredients for a healthy fern are indirect light, cool room temperatures, moist soil and a humid atmosphere. The Boston Fern needs all of these.

The Boston Fern requires bright indirect light with no direct sun, such as in an east facing window or behind a sheer curtain in south and west windows, or far enough from the window so the plant is not in direct sunlight. It prefers cool to average home temperatures. Most references state that this fern prefers daytime temperatures of about 65 to 75 F (20 to 24 °C) and nighttime temperatures slightly cooler. Be careful to place the fern in a location that is not affected by any drafts, such as near an exterior door or next to a heating/cooling vent.

Water the Boston Fern with water at room temperature when the soil becomes slightly dry on the surface. The best way to determine when to water is to feel the soil with your finger to check the soil moisture. If possible, keep the potting medium evenly moist but not saturated. Do not let the pot sit in standing water in the saucer as root rot may occur.

Spray the foliage with water to clean the dust off the fronds. Use distilled water at room temperature, if possible, since the fronds are sensitive to salt impurities in tap water.

photo: North Carolina Cooperative Extension



Low humidity around the home, usually averaging 10 to 15 percent, can be a problem for many tropical indoor plants. Thirty percent humidity is about as low a level as a fern can tolerate. Forty to 50 percent humidity is a more desirable range.

The Boston Fern prefers high humidity. To increase the humidity, place the fern in one of the moister areas of the house, such as a bathroom, with a window for light. Double-pot the fern in a permeable pot, such as clay, inside another container. Fill the area between the pot and the container with pea gravel or sphagnum moss, and keep the buffer material between the pots moist. Place the potted plant in a saucer (or tray) filled with wet pebbles or gravel. Add water to the saucer, maintaining at least 1/4 inch (5 mm) of water at all times.

The bottom of the pot should not touch the water in the saucer. Sitting directly in water may cause fungal diseases or root rot. For best results, replace the gravel periodically or wash it thoroughly every three months to reduce the growth of algae in the water or on the pebbles. Place a room humidifier near the plant to obtain 30 to 50 percent humidity within the room. Browning on the tips of the fronds and the yellowing and dropping of interior leaves are signs of low humidity. Shedding of fronds is a condition that will occur if the soil dries out. Drying from the ends of the fronds are signs of over-fertilization. Scales or spider mites can be a problem if the air around the plant is too dry.

Mealybugs and white flies can also be a problem.

Specific recommendations for fertilization vary. Many recommend a liquid or slow-release houseplant fertilizer at half strength. Fertilize the Boston Fern monthly from April to September and once every 2 months for the remainder of the year, with natural fertilizers such as fish emulsion giving good results.

Ferns prefer potting soil with good drainage and high organic content. A fern potting mix should have peat moss or sphagnum for moisture retention, sand or gravel for drainage and sterilized bagged garden loam or potting soil. One good soil mix for the Boston Fern is 1/3 loamy garden soil, 1/3 sand or perlite and 2/3 peat or shredded sphagnum, with 1 part leaf mold added.

'Dallas,' a small cultivar (also sold as 'Dallas Jewel'), tolerates lower light levels and less humidity. 'Florida Ruffle' is medium-sized, with twice divided leaflets for a more feathery look. The stiff fronds are wider at the base for a denser canopy.

'Bostoniensis' is the most popular cultivar, to the point that some articles discuss this cultivar synonymous with *Nephrolepis exaltata*. The difference is in the arching of the fronds, with the cultivar being more weeping in habit. 'Compacta' is shorter, more compact and more upright than 'Bostoniensis' with 15 to 18 inch (35 to 45 cm) fronds.

'Fluffy Duffy' is small and fine-textured for a feathery look. The fronds are divided two or three times with extensive overlapping to form a very dense plant. 'Fluffy Ruffles' is a smaller, sterile selection with stiff, upright fronds with dense wavy-edged and incised leaflets. 'Golden Boston' has yellow-green fronds. 'Massii' is very similar to 'Bostoniensis' but is darker green and more pendulous. 'Rita's Gold~' is more compact with chartreuse fronds. 'Rooseveltii' has finely cut and feathery fronds, some with crested ends. 'Verona' has very drooping, lacy fronds. 'Whitmanii' is more finely cut and feathery fronds that tolerates lower humidity.

Boston Fern is best propagated by division. Remove the plant from the pot. Cut into the root mass, and divide it into two or three sections with a sharp knife. Repot the ferns and locate them in a humid area, keeping the soil evenly moist. For regeneration of an existing Boston Fern, cutting old fronds off at the soil will help encourage growth of new fronds. If the fern sheds fronds due to dried out soils, all fronds may be cut back to about 2 inches (5 cm) to regenerate.



Boston Fern spores

photo: North Carolina Cooperative Extension

References

- [Nephrolepis exaltata](#), North Carolina State Extension Gardener Plant Toolbox
- [Nephrolepis exaltata](#), Missouri Botanical Gardens
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- [Boston Fern, Nephrolepis exaltata var. 'Bostoniensis,'](#) Wisconsin Horticulture Division of Extension
- [Ferns for Indoors](#), B. Rosie Lerner, Purdue University Cooperative Extension Service
- [Ferns: Indoor Growing](#), University of Connecticut Home and Garden Education Center