

New England Carnivorous Plant Society

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Potting Mixes and Repotting Nepenthes

One of the most controversial topics in growing carnivorous plants has to do with potting mixes in general, and mixes for *Nepenthes* in particular. This has been a hot topic in books, magazine articles, and recently in chats and listservs on the Internet. As more plants become available at lower prices to more people, it will become an even more important topic.

If you were to ask 100 successful growers what potting mix they used for *Nepenthes*, you would most likely get hundreds of responses! Considering the fact that everyone's growing conditions are different, people have access to different potting media ingredients, and there are many species of *Nepenthes* with different culture requirements, this isn't surprising. However, for both the beginner and the advanced home grower, there are some basic ideas and concepts to use as a guide.

Nepenthes have evolved for thousands {millions?} of years to enable them to grow and thrive in low nutrient, moist to wet soils, generally high in organic matter. The best potting mixes take this into account, and factor in the specific growing locations for the individual plants. For example, some lowlanders like *N. ampullaria*, *N. mirabilis* *N. bicalcarata* will grow in very wet, swampy locations and soils, whereas some highlanders will grow in areas that receive heavy rains daily, but where the water drains away rapidly. Both plant types want wet to damp soil, but they also need to some degree well-drained aerated soils. So, by combining the requirements for the soil with native location information, we can come close to getting a proper soil mix recipe.

There is one more important factor when deciding on a *Nepenthes* soil mix. Often overlooked, it is simply where the plant will be grown by the collector, and the growing conditions of the collector. Some plants are grown on windowsills in heated homes, where they will be subjected to drying out more rapidly than plants grown in a greenhouse. Some greenhouse plants are grown in conditions where they are misted automatically many times a day. The soil mixes for these different conditions should be adjusted for the conditions to get the best growth.

Generally, *Nepenthes* need a soil mix that holds moisture well, drains well, is low in nutrients, and is acidic. There really isn't any one thing that supplies all this, so mixes have been developed to meet the requirements. The mixes are usually composed of some or all of the following in different proportions:

- Peat Moss
- Long-Fibered Sphagnum Moss (LFS)
- Perlite
- Vermiculite
- Pine bark (Orchid Bark)
- Osmunda or tree fern

- Sand
- Expanded clay products and/or pumice
- Charcoal

When mixing these ingredients for a potting mix, I like to try to get a “fluffy” mixture, one that isn’t too dense or heavy for most plants. This allows for the mix to drain well, and aerate the mix a little better. My basic mix for nepenthes is roughly one part each of the following, measured when damp, by volume:

- Long Fibered Sphagnum Moss {chopped to 2”-3”}
- Peat moss
- Sand
- Perlite
- Orchid Bark
- Osmunda {broken into ½ to 1-inch pieces}

I mix these ingredients when damp to help keep the dust down, and to get them to bind better into some structure. Once mixed, I usually adjust the proportions slightly, adding more of one thing or another. I find I usually have to add some additional Long Fibered Moss and Osmunda. The mix is right when I can take a handful, squeeze it, and it springs back and falls apart slightly while still holding together somewhat. This is what I call “fluffy”, and it gives me what I am looking for in a mix. This is the mix I use for most Nepenthes in my collection, all the hybrids and intermediate growing plants. It is a good place to start for almost any plant. There are some special cases however.

Refining the Basic Mix for Particular Plants

Some Nepenthes require a more specialized mix for best growth in the conditions that I grow my plants in. I adjust the basic mix a bit to better fit what these plants want. I grow the highlanders like *N. burbidgea*, and *N. ramispina* in a better draining mix. To the basic mix I add more Osmunda, sand and Orchid Bark to make the mixture looser, but still very organic. This gives me a quicker draining mix that is still high in organic material. For my “Ultra Lowlanders” like *N. ampullaria* and *N. bicalcarata*, I switch to a mix of Long Fibered Moss and Osmunda, mixed 1.5 to 1 or 2 to 1. This results in a somewhat more “swampier” mix for these plants. But I still use the basic mix for most plants, including *N. gracilis*, *N. rafflesiana*, *N. albomarginata*, *N. hirsuta*, *N. truncata*, *N. khasiana*, *N. alata*, *N. ventricosa*, *N. maxima*, *N. tobiaca*, *N. spathulata*, and almost all hybrids! I find that the basic mix provides the what I need for the conditions I grow my plants in.

Repotting Nepenthes

Repotting Nepenthes needs to be done when the plants either outgrow their containers, or when the potting mix no longer provides the necessary requirements for growth. Generally, the mix will decompose to the point where it no longer allows for good drainage and it compacts. This may take anywhere from 2 to 4 years in my growing conditions. You can tell compacted soils by watching how long the water takes to drain when watered, and looking at the soil level. The soil level will drop and get lower in the pot as the mix decomposes and compacts.

I like to plant most of my nepenthes in plastic pots, either new or well cleaned. I find that the plastic pots hold the moisture in longer, resulting in a reduced need for watering. Also, when growing in terrariums, it helps to stop moss from growing on the outside of the pot. Some of my bigger plants I do grow in clay or ceramic pots for display reasons, but I like to leave these pots outside one season at least to help leech any bad chemicals from the pot before I plant Nepenthes in them. I always avoid “cement” pots, or those that look like they are made from that type of material. I have lost plants in pots like that, and I believe it was because the cement pot reacted with the acid soil mix to create a more basic mix that harmed the plant.

When replanting, remove the plant from the previous pot and shake off most, not all, of the existing mix. I like to leave a ball of mix around the base of the plant and roots if possible. I find that this gives the plant a little less root disturbance, and helps the plant get off to a better start after repotting. So, I shake off the mix till I see some root ends poking through the existing mix. Always try to repot the plant at the same soil line, with the potting mix at the same level on the stem as before. Put something in the bottom of the new pot to stop the mix from going through the drainage holes {always use a pot with drainage holes!}. You can use broken clay pots or crockery, but most often I use a small layer of wet Long Fibered Sphagnum Moss. Put some of the potting mix into the pot, and position the plant in the pot so the soil level will be the same. If you need to, take the plant out and add or remove the mix till the plant sits at the right level. Once you have the right height, add mix around the edges, firming it with your fingers or a potting stick as you go. The mix should not be pressed hard into the pot, but firmly to make the plant stable. I like to actually have the plant sitting a little higher than it should be, since it will settle a little bit when I water the first time. When repotted, I give the plant a heavy watering, letting the water run freely out the bottom. You cannot over water if you let the water drain freely! Then set the pot into a shaded spot, returning it to the growing area in a few days. If I am repotting and then putting the plant outside, I generally wait about a week to return it to the normal sunlight it would get. The procedure is the same for plants I receive bare root, except I add a soaking in Superthrive to the bare root plants to help them get a good start, and I always put newly repotted bare root plants into a terrarium for a few weeks to recover.

One precaution that I take when mixing media and repotting is to always wear rubber gloves to protect my hands from the potting mix. Unfortunately, there are problems that can be passed on to humans from contact with some of the materials used for repotting. There are fungal infections that can be caught if handling sphagnum moss with bare hands, especially if you have small cuts or abrasions on your hands. So, to be safe, always wear rubber or latex gloves when handling soil mixes, not just for CPs but also for all types of plants!

Potting mixes and repotting *Nepenthes* shouldn't be troublesome to the home grower if some basic rules are followed, and the grower considers the natural habitat of the plant and the growing conditions that the plant will be grown in. By paying attention to these basic ideas, it is relatively easy to find the right mix to help make it easier to grow *nepenthes* at home.

For Further reading:

- *The Savage Garden*, by Peter D'Amato, 1998, Ten Speed Press
- *Carnivorous Plants*, by Adrian Slack, 1979/2000 Marston House
- *Carnivorous Plants of the World*, James and Patricia Pietropaolo, 1986, Timber Press