

Vanda tessellata (Roxburgh) Hooker

SYNONYMS: *Aerides tessellatum* Wight, *Cymbidium alagnata* Hamilton ex Wallich, *Cymbidium tessellatum* Swartz, *Cymbidium tesselloides* Roxburgh, *Epidendrum tessellatum* Roxburgh, *Epidendrum tesselloides* Steudel, *Vanda roxburghii* Robert Brown, *Vanda tesselloides* Rchb. f., *Vanda unicolor* Steudel.

ORIGIN/HABITAT: Sri Lanka, India, Nepal, and Burma. This orchid is found in the sub-Himalayan regions at elevations below 1500 ft. (455 m), where it grows in warm and humid tropical forests. It is also found on those portions of the plains that receive more than 79 in. (200 cm) of rainfall each year. As a result of the high rainfall, forests develop that provide suitable orchid habitat. Plants have been found in West Bengal, Bihar, Orissa, South India, Uttar Pradesh, Madhya Pradesh, Assam, and Gujrat, as well as in west, central, and east Nepal. This orchid is rather common in Sri Lanka, in the northern district of Jaffna, across the north-central part of the island, and across the island from the east to west coast. The habitat extends into the districts of Batticaloa, Polonnaruwa, Anuradhapura, and Puttalam. In Sri Lanka, plants grow on trees in the tropical, dry, mixed evergreen forests.

CLIMATE: Station #42809, Calcutta, West Bengal, India, Lat. 22.7N, Long. 88.4E, at 13 ft. (4 m). Temperatures are calculated for an elevation of 1000 ft. (300 m), resulting in probable extremes of 110F (43C) and 44F (7C).

N/HEMISPHERE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
F AVG MAX	77	83	91	95	94	90	87	87	87	85	82	78
F AVG MIN	54	59	68	75	77	77	77	77	76	72	62	55
DIURNAL RANGE	23	24	23	20	17	13	10	10	11	13	20	23
RAIN/INCHES	0.7	1.6	0.5	3.1	3.8	10.5	12.4	11.2	13.0	8.9	0.6	0.2
HUMIDITY/%	71	53	64	70	75	81	76	85	86	82	73	73
BLOOM SEASON			*		*	*	*	*	*	*		
DAYS CLR @ 6AM	16	13	12	11	9	2	2	0	2	6	10	16
DAYS CLR @ 12PM	20	17	22	16	13	2	0	0	1	7	18	24
RAIN/MM	18	41	13	79	97	267	315	284	330	226	15	5
C AVG MAX	25.0	28.3	32.8	35.0	34.4	32.4	30.6	30.6	30.6	29.4	27.8	25.6
C AVG MIN	12.2	14.9	19.9	23.7	24.9	24.9	24.9	24.9	24.3	22.1	16.5	12.6
DIURNAL RANGE	12.8	13.4	12.9	11.3	9.5	7.5	5.7	5.7	6.3	7.3	11.3	13.0
S/HEMISPHERE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN

Cultural Recommendations:

LIGHT: 3000-4000 fc. Bright light throughout the year, light should be as high as possible, short of burning the leaves. In the habitat, conditions are bright, but the heavy summer cloud cover can dramatically reduce light intensity. Therefore, some shading is prudent, especially at midday, but growers report that cultivated plants grow and bloom well with almost full sunlight. Long, deep green leaves indicate that light is too low. Short, pale, yellow-green leaves that remain somewhat creased and do not open fully indicate that light is too high. Strong air movement is recommended at all times.

TEMPERATURES: Summer days average 87-90F (31-32C), and nights average 77F (25C), with a diurnal range of 10-13F (6-8C). Temperatures in the preceding climate table represent the average conditions under which this orchid should be grown. Because of the wide range of distribution, the southern, warmer parts of the habitat experience conditions about 10F (6C) warmer than indicated with little seasonal variation. On the other hand, areas nearer the Himalayas have winter-time minimums about 10F (6C) cooler. Cultivated plants will probably adapt to conditions throughout this range, but plants should be kept dry if exposed to cooler temperatures.

HUMIDITY: 80-85% in summer and early autumn, dropping gradually to 55-60% for a month or so in late winter and early spring.

WATER: Rainfall is moderate in spring, very heavy in summer and early autumn, and very dry from late autumn through winter. Cultivated plants should be watered often while actively growing, but the roots must dry rapidly after watering. Conditions around the roots should never be stale or soggy. Water should be reduced in autumn.

FERTILIZER: 1/4-1/2 recommended strength, applied weekly when plants are actively growing. Many growers prefer to use a balanced fertilizer throughout the year; but others use a high-nitrogen fertilizer from spring to midsummer, then switch to one high in phosphates in late summer and autumn.

REST PERIOD: Winter days average 77-83F (25-28C), and nights average 54-59F (12-15C), with a diurnal range of 23-24F (13C). In the habitat, rainfall is low from late autumn into early spring, but moisture is generally available from heavy dew. Cultivated plants need less water in winter, but they should not be completely dry for long periods. Occasional early morning mistings, particularly on bright, sunny days, provide sufficient moisture in most growing areas. Plants need high humidity and brisk air movement. Fertilizer should be reduced or eliminated until heavier watering is resumed in spring.

GROWING MEDIA: Plants are usually grown in hanging pots or slatted wooden baskets filled with a very open, fast draining medium. Some are grown with only enough chunky medium, such as charcoal or large cork chips, to anchor the plant until it becomes established. Many growers prefer to use relatively large chunks of tree-fern fiber or coarse fir bark mixed liberally with broken crock and/or charcoal. Others, however, use nothing but broken crock, cracked brick, chunks of volcanic pumice, vermiculite, or even coarse sand. Plants are sometimes placed inside an empty clay pot and allowed to grow without any medium, but humidity should be very high. Plants grown this way should be tied or wedged firmly in place until new roots anchor them to the side of the pot. Regardless of how plants are grown, the roots should grow and hang down as far as they choose, or they may be wound carefully around the basket; but except for trimming off any old, dead roots, they should not be trimmed to make things look neat. Vanda growers report that anything more than minimum root trimming may set the plant back 2-3 years. Good air movement around the roots is critically very important.

Vandaceous plants have large aerial roots, and when it is time to repot, it is difficult to remove plants from their old container without damaging the roots. If plants are grown in slatted baskets, however, they may simply be moved into a larger basket, old basket and all. Growers report that the roots should first be soaked in water until they become pliable. Unlike many orchids, Vanda roots are less subject to damage when they are wet. The roots are then coiled around the existing smaller basket and the entire mass is placed in a larger basket with a few chunks of charcoal added to hold the small basket in place. Fuchs (1990) recommended the following procedure when disturbing the roots cannot be avoided, such as repotting a plant grown in pots or replacing a rotten basket. The plant should be soaked in water until the roots are pliable, removed as carefully as possible from the old container and medium, soaked for 5 minutes in a solution of vitamins, hormones, and fungicide (He recommends a solution of 1 teaspoon of SUPERthrive and 1 tablespoon of Dithane M-45 per gallon of water), and then placed in a new basket. Other growers also report that adding SUPERthrive to the water used to soak the roots seems to minimize the shock of change and also seems to encourage faster growth of new roots. Mr. Fuchs reported that the best season for potting or repotting vandaceous plants is spring and early summer, but usually they can be repotted at almost any time of the year.

MISCELLANEOUS NOTES: The bloom season shown in the climate table is based on cultivation records.

Plant and Flower Information:

PLANT SIZE AND TYPE: A comparatively small, 12-24 in. (30-60 cm) monopodial epiphyte.

STEAM: The stem produces numerous, long, thick roots, which may be simple or branching. They emerge through the brown remnants of old leaf bases that sheath the lower stem.

LEAVES: 5-7 in. (13-18 cm) long by 0.5-0.8 in. (1.2-2.0 cm) wide. Numerous rather closely spaced leaves are arranged in 2 rows with their overlapping bases enclosing the stem. The thick, very leathery, rather rigid, strap-shaped leaves curve downward slightly toward the tip. They have a deep longitudinal channel on the upper surface and 3 teeth at the apex.

INFLORESCENCE: 6-8 in. (15-20 cm) long. Inflorescences are usually a little longer than the leaves. They may be ascending to suberect and emerge along the leaf axils along the upper part of the stem. The stout peduncle is green with 2 or more brownish green bracts, and each blossom is carried on a grooved pedicellate ovary that is white, about 0.1 in. (0.37 cm) long, and slightly twisted.

FLOWERS: 4-10, The fully open blossoms are about 2 in. (5 cm) across, fragrant, rather long-lasting, and extremely variable in color. The typical form has sepals and petals that are white on the outside and pale green with brown tessellations on the inside. Flower color varies from reds, pinks, grays, yellows, greens, and blues, but the tessellated markings are a constant distinguishing feature. The obovate sepals and petals are about 1 in. (2.5 cm) long by 0.6 in. (1.5 cm) wide, with the lateral sepals being a little wider. Each segment, which has many veins, is rather wavy and bluntly tipped. The 3-lobed lip is funnel-shaped with erect, white lateral lobes that are about 0.4 in. (1.0 cm) long by 0.2 in. (0.4 cm) wide. The fiddle-shaped midlobe is violet-purple, becoming paler toward the base. It is 0.7 in. (1.7 cm) long by 0.5 in. (1.2 cm) wide. The lip midlobe is constricted below the 2-toothed apex, and the disc is swollen with fleshy curved ridges. The short spur is conical, 0.2-0.3 in. (0.6-0.7 cm) long, rather blunt, and laterally compressed. The fleshy, cylindrical, white column is about 0.3 in. (0.9 cm) long by 0.2 in. (0.5 cm) broad.

HYBRIDIZING NOTES: The tessellations on the sepals and petals are inherited by hybrid progeny.

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