

## Georgia Trilliums: An Appreciation

**Part One: The Wakerobins** - Trilliums with uniformly green leaves and flowers with flower stalks (pedicels or peduncles) that position the flower erect above the leaves, spreading variously from the leaves, or even declined beneath the leaves.

There are three species groups within subgenus *Trillium*. This classification is a practical one, not based on molecular breakthroughs or formal names. The following remarks are written to apply to Georgia's trilliums. Lumping into groups does not infer that members of the group are closely related unless the species group is called a complex. It means only that they resemble each other, or stand alone as distinctive on morphological grounds. Within each group, species will key out closely using easily observed field characters. Two characters, petal color and floral fragrance, tend to be too variable in some species and must be used with caution. Floral fragrance is best detected during early evening hours on a warm, sunny day when flowers are fresh or in anthesis (pollen sacs are shedding pollen).

There are 12 wakerobins in Georgia informally placed in three groups as follows: Group 1: The Erectum Complex (7 species), Group 2: Species with White Flowers that Turn Pink; Pollen yellowish (4 species), and Group 3: Painted Trillium; pollen whitish lavender (1 species).

### Group 1. The Erectum Complex

The Erectum Complex is a group of closely related problematic trilliums apparently still developing. These trilliums have coarse-textured petals that are not wavy-margined, do not change colors following pollination, and show prominent netted veins. The petals spread without overlapping at the base into a tube. The stigmas are thickened toward the base, but do not fuse into a distinct style. The fruit is a fleshy capsule, 6-winged when immature but obscurely winged when plump. Capsule color ranges from shiny black to dull purplish red.

1. *Trillium erectum* Linnaeus - Red Trillium, Stinking Benjamin, Stinking Willie, Wakerobin. Best Characters: leaves rhomboid; cup and saucer flower profile with sepals and petals (the "saucer") widely spreading from base at right angles to flower stalk, the stamens and ovary (the "cup") totally exposed; stamens about as long as the ovary; ovary globose, mostly purplish black to black.
2. *Trillium flexipes* Rafinesque - White Trillium, Bentstalk Trillium. Best Characters: filaments shorter than creamy anthers; ovary prominent, flask-shaped, white to pink with prominent stigmas.
3. *Trillium rugelii* Rendle - Southern Nodding Trillium. Best Characters: Stamens longer than ovary; stamens bicolored with burgundy anthers and white filaments; petals strongly recurved from the base; ovary mostly white to pink.
4. *Trillium simile* Gleason - Sweet White Trillium, Jeweled Trillium. Best Characters: leaves broadly elliptic, sometimes overlapping; sepals and petals gradually spreading, flowers with a cup-shaped profile; petals broad enough to overlap near base; stamens much longer than ovary; ovary black to purplish black.

5. *Trillium sulcatum* Patrick - Southern Red Trillium, Barksdale's Trillium, Rainbow Trillium. Best Characters: flowers on long stalks that are more than twice as long as sepals; flower gaping in profile like a candle snuffer; petals ovate, gradually spreading, concealing the ovary from side-view; stamens longer than ovary.
6. *Trillium vaseyi* Hargison - Vasey's Trillium. Best Characters: long exerted stamens; nodding flowers; broadly ovate petals; funereal (like a room full of deep red roses) fragrance.
7. *Trillium* sp. "Amicalola Trillium" - Best Characters: blooms late, with or just before Vasey's trillium; stamens much longer than ovary, both filaments and anthers relatively long; flowers on long stalks either above or below leaves; petals usually white; ovary prominent, sometimes flask-shaped, pinkish white to reddish purple, the stigmas very pronounced and recoiled.

## Group 2. Species with White to Pink Flowers that Deepen with Age

These are the "Trumpet Flowers" with petals loosely to tightly overlapping into a tube at base, then flaring outward like the bell of a trumpet. The stigmas are narrow, uniform in width from base to apex, and joined into a short style at the base. The pollen color ranges from pale yellow to deep yellow; the pollen falls to the inside. The petals are white, changing to pink; or sometimes pink from the start and turning darker with age. The delicately textured petals have inconspicuous veins and may have wavy margins and inconspicuous veins. The fruit is a fleshy capsule, from obscurely 3-winged to prominently 6-winged when mature. Capsule color ranges from white to greenish white.

8. *Trillium catesbaei* Elliott - Catesby's Trillium, Bashful Wakerobin, Rose Trillium. Best Characters: leaves with small stalks, the blade broadest near the middle, the tips pointed with convex sides; flowers below leaves; sepals falcate (strongly arched), often purplish; petals strongly reflexed above the tube; anthers somewhat twisted and curved outward, the pollen deep yellow.
9. *Trillium grandiflorum* (Michaux) Salisbury - Large-flowered Trillium, White Trillium, Showy Wakerobin. Best Characters: leaves without stalks, the blades broadest below the middle, the tips pointed with convex sides; flowers above the leaves; sepals gradually spreading; anthers straight, pale yellow, concealing young ovary.
10. *Trillium persistens* Duncan - Persistent Trillium, Edna's Trillium. Best Characters: plants blooming early, as early as late February and peaking by early April; anthers pale yellow, straight, somewhat appressed against the pistil; leaves evenly tapered to a sharp point; flowers weakly trumpet shaped to merely gaping, the petals not stiffly erect at the base and often twisting independently.
11. *Trillium pusillum* Michaux - Dwarf Trillium, Least Trillium. Best Characters: entire plant less than 8 inches high, usually much smaller, with narrow, blunt leaves; sepals with rounded, upturned tips; anthers pale purple between the pollen sacs.

### Group 3. Painted Trillium

This group consists of a single distinctive species. Leaves bluegreen, sometimes with a coppery tint, with short leafstalks, petals delicate, wavy-margined, white with red blazes, rarely diffused pink or pure white; fading to brown and withering; anthers much smaller than filaments, the pollen falling outward; fruit a smooth, bright red berry. No floral fragrance detected.

12. *Trillium undulatum* Wildenow - Painted Trillium. Best Characters: petals delicate, wavy, usually spotted with a red blaze or red triangular pattern on the inside base; leaves coppery green with small petioles.

**Part Two: The Toadshades** - Trilliums with attractively mottled leaves; flowers sessile (no distinct flower stalk, the flower sitting directly on top of the leaves).

These 10 species have sessile flowers or flowers without stalks; the leaves are mottled with two to five shades of green, bluegreen and/or silvery green. To assist in identification of Georgia's sessile trilliums or toadshades, three species groups are used in subgenus *Phyllantherum*. These are described below as Group 1: The Cuneatum Complex (3 species); Group 2: Species with Narrowly Clawed Petals (3 species); and Group 3: Species with Prominent Anther Beaks (4 species).

#### Group 1. The Cuneatum Complex, Species with Gradually Tapered Petals and Stamens without Prominent Beaks

These are trilliums with weakly to strongly spotted or mottled leaves, flowers that are closed in side-view with petals erect and somewhat overlapping concealing inner parts, stamens that end in blunt tips (not pronounced beak-like sterile appendages), and floral fragrances that are pleasant. The petals may have narrow, evenly tapered bases (wedge-shaped or cuneate), but they are not distinctly clawed. The stamens are straight, each appressed between the ovary wings and about as long as the ovary; the ovary is broadest near the base or flask-shaped.

13. *Trillium cuneatum* Rafinesque - Sweet Betsy, Whippoorwill Flower, Purple Toadshade. Best Characters: floral fragrance like spicy bananas or papayas; ovary purplish; stamens and ovary about equal in length; petals maroon, yellow, bronze, green, and usually more than one-half inch wide.
14. *Trillium ludovicianum* Harbison - Louisiana Trillium. Best Characters: ovary purplish; stamens slightly longer than pistil; petals maroon, narrow (less than one-half inch wide); floral fragrance obnoxious, weakly fetid.
15. *Trillium luteum* (Muhlenberg) Harbison - Yellow Trillium. Best Characters: floral fragrance weakly lemony; leaves sometimes only weakly mottled; ovary greenish white; petals yellow aging to deep yellow.

#### Group 2. Species with Narrowly Clawed Petals

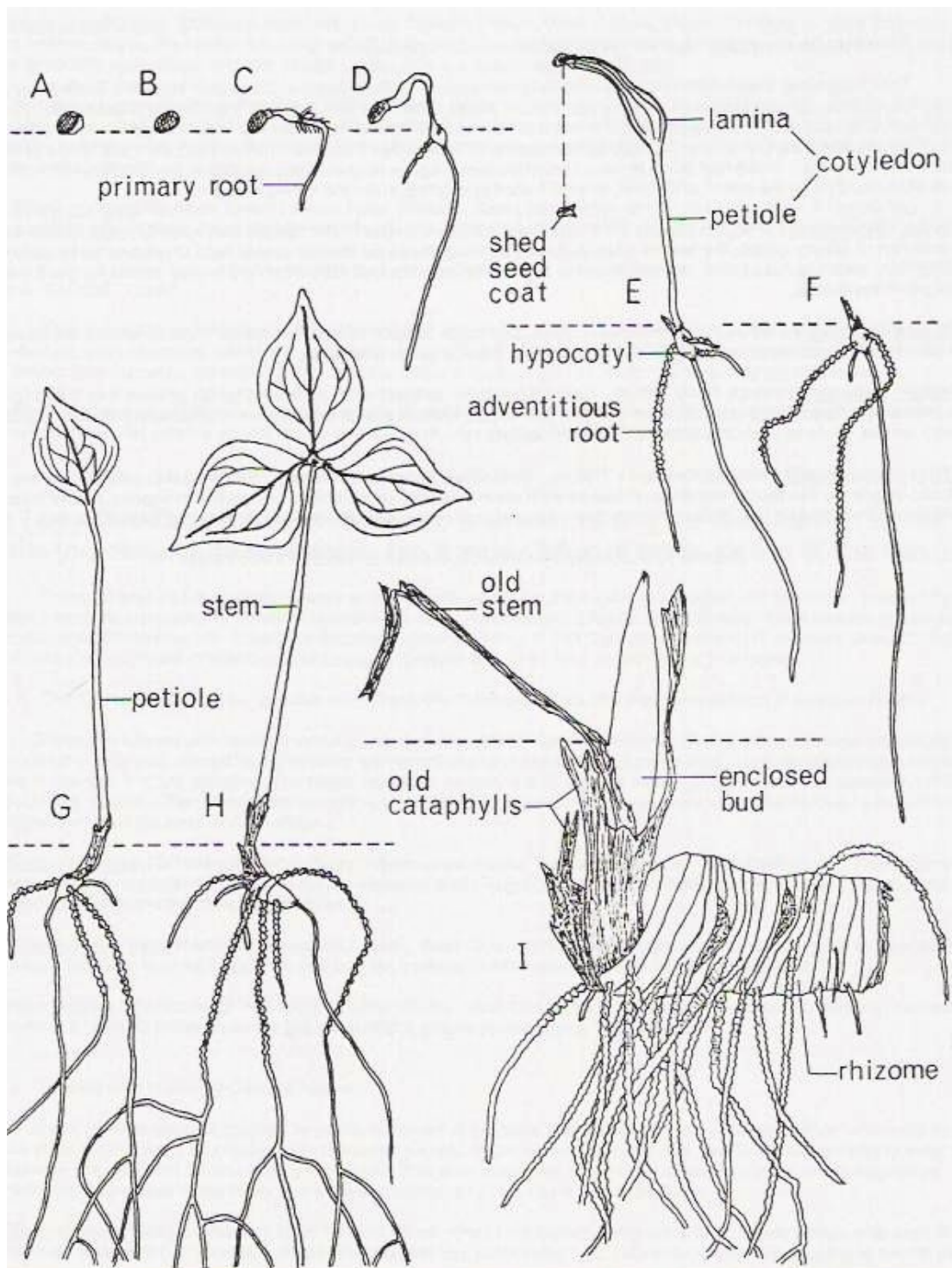
These trilliums are distinguished by petals narrowed at the base, a condition known as "clawed petals" where the lower part of the petal is constricted and thicker than the upper portion. When viewed from the side, the flower is open with its inner parts visible between the narrowed bases of the erect petals. This is an adaptation to attract pollinators cued by strong fragrances emitted from the fleshy base of the ovary and the accumulation of pollen found within the flower.

16. *Trillium discolor* Wray ex Hooker - Pale Yellow Trillium. Best Characters: fragrance like cloves; petals with claw-like base, incurved toward the apex with a distinctive pointed tip; petal color pale yellow to almost ivory aging to lemon yellow.
17. *Trillium lancifolium* Rafinesque - Lanceleaf Trillium. Best Characters: sepals abruptly spreading to reflexed; skinny, lanky habit, the leaves narrowly elliptic; petals stiffly erect, extremely narrow, their tips sometimes twisted together; stamens arched over ovary.
18. *Trillium maculatum* Rafinesque - Spotted Trillium. Best Characters: fragrance spicy with cinnamon overtones; petals rich burgundy, rarely pale yellow; anthers broad, flat, with small pollen sacs.

### Group 3. Species with Gradually Tapered Petals and Prominent Anther Beaks

This group most closely resembles the mottled-leaved species of *Paris* found in China than any other North American trilliums. They exhibit stamens renowned for their pronounced sterile anther tips that resemble tiny "beaks". These are prolongations of the connective tissue between the two anther sacs; the "beaks" are more than 1 mm long and curve slightly inward. Other sessile-flowered trilliums sometimes have remnant "beaks", but these are smaller, less than 1 mm long and often resemble a stub-like point. This group tends to have obnoxious floral fragrances and strong mottling in the leaves. A prominent silver stripe is often found down the center of the leaf; at least 5 shades of green make the leaves attractive.

19. *Trillium decumbens* Harbison - Trailing Trillium, Decumbent Trillium. Best Characters: leaves strikingly mottled with large patches of silvery green, the leaves often as broad as long, those on mature plants held at ground level; upper stems minutely hairy near top (use lens); anthers opening toward the outside and with extended beaks; petals longer than half the length of the leaves.
20. *Trillium decipiens* Freeman - Chattahoochee Trillium, Deceptive Trillium. Best Characters: leaves with a strong central silver stripe; petals widest above the middle, usually 3 or 4 times as long as wide.
21. *Trillium reliquum* Freeman - Relict Trillium. Best Characters: Anthers with extended beaks at least 2 or 3 mm long; petals narrowly elliptic, much shorter than half the leaf length; mature plants with leaves at ground level; stems S-shaped, smooth; leaves ovate to orbicular with central silver stripe.
22. *Trillium underwoodii* Small - Underwood's Trillium. Best Characters: anthers with minute beaks; petals narrowly elliptic to elliptic; fragrance like moldy old cheese; leaves with strong central silver stripe, somewhat drooping, nearly touching ground when first coming into flower; leaves much longer than broad with a long, evenly tapered, pointed apex.



**Life Cycle of *Trillium grandiflorum***

A - Seed with appendage shed in midsummer. B - Seed during first winter. C - Germination the first spring. D - Seedling the second winter. E - Maturing cotyledon the second spring. F - Dormant plant the third winter. G - Single-leaved plant the third spring. H - Three-leaved plant the sixth spring. I - Dormant mature plant at about 22 years. Note two old stem scars on the rhizome above the mass of adventitious roots.