THE ALPINE GARDEN SOCIETY

CENTRAL SUSSEX GROUP

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Mr. & Mrs. Phil Phillips
Sarracenias to Trillium

Neither *Sarracenia* nor *Trillium* are alpines and although both often grow in woodland habitats, *Trillium* can be found at altitudes of up to 5000ft. in both the west and east of North America, whereas *Sarracenia* are generally plants of acid and boggy ground at lowland elevations and are confined to the southern and south eastern states of the USA from E. Texas to the Carolinas where the summers are hot and humid and the winters mild. Their respective habitats were illustrated in the two first slides of *Sarracenia leucophylla* and *Trillium luteum*.

The Trumpet Pitchers, *Sarracenia*. are an important group of carnivorous plants which obtain their nutrients by trapping the bodies of their insect and small animal victims and digesting them with their manufactured acids and enzymes. Although varying in detail, the trapping mechanism is typically a trumpet-like tube with a lid-like hood which is scattered with nectar glands and downward-pointing hairs. A roll at the top of the tube contains abundant nectar glands on which insects have little foothold and the glossy waxy surface of the tube below offers no foothold. This leads to a lower zone lined with sharp down-ward pointing hairs from which escape is impossible. Insects are attracted by the nectar scent, its presence further advertised in most species by the colour of the flowers which are heavily veined.

Around Mobil, often in standing water is *S. alata*, the only Texan species growing in their millions. Fire, usually arising from lightning, clears undergrowth and allows the plants to flourish. The very pale yellow to creamy-white flowers are unique and become lined with straight red veins which continue into the hood. With it a bog orchid *Calopogon pulchellus*, beautifully bearded, pink to lavender flowered.

Unlike the passive traps of *Sarracenia*, *Drosera* – the Sundews have active ones in that the sticky upper surface of the leaf blades temporarily hold alighting insects. This activates numerous tentacle-like arms each with a drop of clear, glistening, adhesive mucilage which close when irritated, the secreting enzymes, like the Sarracenias, dissolving all but the chitinous skeletons and absorbing the resulting fluid into the plant. These are the jewels of carnivorous plants and we were shown *Drosera annua,* white flowered *D. intermedia* most found in very wet peaty conditions, *D. rotundifolia* the most widely distributed species in the temperate regions of the northern hemisphere, the minute flowers in a raceme which only open for a short time in bright sunlight at around midday and *D. capillaris* which unlike the not disimilar *D. rotundifolia* (202/329), is evergreen and grows in open woodland, although it can be obliterated by shrub invasion. *Pinguicula* with their sticky rosettes are well known to alpine gardeners, although *P. pumila* with pale mauve flowers is not one of them.

The Bladderworts *Utricularia* is a large genus of around 250 species, many aquatic or growing in wet soils, some epiphytic. They are rootless, the majority forming long stems or stolons from which arise the two-lipped and spurred flowers and the minute and ingenious bladder-like traps in which an unsuspecting victim operates tipping hairs to open a door and is immediately drawn inwards by suction; with the vacuum released, the door closes, the prisoner eventually dying and is digested. In *U. inflata* the flowering stalk is supported by radially orientated floats which inflate and rise to the surface; the reddish scape bears pale yellow flowers.

There are few bulbous plants, but *Hymenocalis liriosme* lives in a very wet habitat and even shallow water, as does the Water Mocassin. *Zephyranthes drummondii* is quite common on the Gulf Coast to just over the Mexican border, growing in flat meadows and banks, the flowers with mauve backed petals. An Iridaceae, *Herbertia lahue* grows in southern South America as well as in Texas and Louisiana, its blue-violet flowers in three outer spreading segments and much smaller three inner ones with a conspicuous blotched centre; these are short lived, withering by midday. *Nemastylis* is another member of the family with grassy leaves and again short lived flowers and *N. geminiflora (acuta)* from Tennessee and Kansas south to the the coast, with yellow styles and blue flowers white blotched at the centre. So too from Texas and Louisiana in open pine woods, is *Alophia drummondii* not unlike a *Tigridia* with purple outer segments, the inner ones heavily spotted yellow and white.

Sarracenia leucophylla - pitcher

Sarracenia leurophylla - flower

Back to *Sarracenia* and around Mobil massed plants of *S. alata* and *S. leucophylla*, but scenes like this are no longer common because of fire suppression measures allowing overgrowth and over draining – millions have now gone. *S. flava* has tall and erect pitchers and is to be found from Alabama to S.W. Virginia, the clear yellow flowers open while the pitchers are still in early growth. There is a good deal of variation, evident in the pitcher colouration, form and stature subspecies – *var. rugellii* with a red blotch on the column, *var. ornata* and green flowered *var. flava* from northern Carolina. S. *rubra ssp.gulfensis*, grows in a very limited areas of north-west Florida and is protected in part by the presence of an airforce base; the sepals a bronzy mahogany, the petals bright bronzy-red, the coloured veins on the outer parts of the long tube dark red. Did it survive Hurricane Ivan? In *S. leucophylla*, the pitchers are tall, slender and erect, the white background often with an extravagant crimson-red network of veining; the sweet, fragrant petals an intense red, the sepals darker toned, the pistil of a deep copper. It can be found in roadside habitats, a refuge since it is disappearing because it encourages mosquitoes and from drainage. *S. rubra ssp. wherryi* is confined to a barely 80 mile tract between S.E. Alabama and the extreme north-west tip

of Florida and its pitcher has a background olive colour with pronounced maroon venation. The Huntsman's Cup *S. purpurea* (257/365) differs from any other species in that the pitcher lies horizontally, curved with a wide mouth and has a large upright hood, reminiscent of a drinking horn.

Probably the most well known of the carnivorous plants is the mono-specific Venus Fly Trap, *Dionaea musipula*, the first plant suspected of having this habit. The leafblade is a two-lobed trap along whose margins are 15 to 20 prong-like teeth which are inclined inwards so that when the trap is sprung, they interlock. Insects are attracted by the red colouration of many of the lobes and glands just below the teeth which secrete nectar; trigger hairs which must be touched twice within about 20 seconds for success – the flattening of the lobes is often sufficient to crush the victim and acids and enzymes begin their digestion.

To end the discussion of carnivorous plants, a dash to the west coast of Oregon and California where in sphagnum and peat bogs from sea level up to 8,500ft. there grows the Cobra Lily *Darlingtonia californica* (243/16). Insects are attracted to its menacing head by twin variegated red and green fishtail nectaries at the back of which is an elliptic mouth, but if they choose to exit by an apparent window in the dome, will loose their footing and fall into the tube and water at its base, where because of soaked bodies and wings they cannot find a footing up the slippery tube with down-pointing hairs. No enzymes appear to be involved and the victims are digested by bacterial action. The nodding flowers with five green sepals and five heavily crimson-veined petals appear in spring.

We now turned to the much more familiar *Trillium* (219/98, 286/430) , most of whom (35 out of a total of about 50) are native to eastern North America from southern Canada to the southern states of the U.S.A. and west to the Mississippi. They are divided into two subgenera – those with green leaves and pedicellate flowers and spreading petals and those with sessile flowers, leaves usually mottled, petals more or less erect. The first pedicellate species shown was *T. catesbaei* (250/426) (Bashful Wake-Robin) widespread in the southern Appalachians in thickets and woodland, often close to river banks, its anthers bright yellow, petals white, pink or rose and not easily seen from a distance; in southern Carolina the flowers are deeper pink and larger. The much confused *T. simile* ('similar to what?' asked Phil) carries huge, textured creamy-white flowers. With them *Uvularia grandiflora*, its drooping flowers the deepest yellow of the five species and *Erythronium americanum* the only species in the east of the continent, with single bright golden-yellow flowers and dark chocolate or yellow anthers. In rolling hills, at the end of April, with deciduous trees just coming into leaf, *Trillium erectum* (201/197, 244/121) occurs in upland forest and under Tsuga, Rhododendron and Kalmia, the plants varying within and between colonies. Smelling of wet dog (hence Stinking Willy etc), its flowers are frequently a soft pale yellow, but sometimes maroon. A white *var. album* is the predominant form at lower elevations around the Great Smokies – the name derives from the misty atmosphere and more recently pollution. One of the more distinctive species, *T. undulatum* (201/188) is a late flowering, usually occurring as scattered individuals, the flowers white splashed red at the centre radiating outwards along veins (hence its name of Painted Trillium), petal margins undulate. Distribution mainly north of the Appalachians, *P. sulcatum* has its distribution restricted to an area from south west Virginia to north east Alabama (and especially on Tennessee's Cumberland Plateau) growing on moist north and east-facing slopes. It is a beautiful species with very large leaves, an upright pedicel, the sharp-tipped sepals purple maroon, the recurved petals usually dark red-maroon to purplish. There is a yellow form and a very small white one with extremely large leaves. *T. grandiflorum* (201/187, 275/52 – 'Flore Plena') is the provincial flower of Ontario and its abundance and flowering spectacle is unmatched – hence its popularity. On an erect pedicel, the typical form has pointed green sepals and large white, veined flowers with contrasting strongly yellow anthers, but *T. grandiflorum f. roseum* (238/332) growing along at least 100 miles of Virginia's Blue Ridge Mountains

is particularly attractive. There are many other floral variations including double and multi-petaled forms.

The first of the sessile species shown, *T. luteum* can be seen in their hundreds of thousands along the 500 mile long Blue Ridge Parkway (no commercial vehicles allowed) and around Gatlinburg, Tennessee just west of the Great Smoky Mountains National Park in forests, roadsides and even roadside ditches. The sessile leaves are strongly mottled with paler green at first, the sepals green, petals greenish-yellow to lemon-yellow, lemon scented. One of the most distinctive features of *T. underwoodii* are the very large petals on a short erect stem; the leaves, usually touching the ground, are strongly mottled in varying shades of green and bronze, while the erect flowers are a rich maroon or purple-red; it is a southern species growing in fairly moist soils on the borders of Georgia, Florida and Alabama. *T. stamineum* from athwart the state borders between Alabama and Mississippi, is something of a curiosity with normal green sepals and twisted horizontal petals which are usually dark red- or brown-purple. *T. maculatum* is one of the most attractive sessile trilliums, a large plant found in both low and upland habitats from E. Alabama to S.W. Carolina. The typical plant has conspicuously marked leaves, purple-maroon petals, carpels and stamens, although there are yellow forms lacking purple pigment and others that are intermediate; because it emerges early, late frosts may destroy its growth until the following year. *T. ludovicianum,* its epithet meaning 'Louisiana', is all but endemic to that state where it grows often alongside streams; the leaves are in many ways more conspicuous than the purplish petals. The first sessile-flowered Trillium species to be named by Linnaeus was *T. sessile* (223/22, 238/306) which inhabits rich limestone soils mainly in Mississippi and from Kentucky to Indiana and Ohio. The flowers sit on top of the green leaves sometimes with a silvery-sheen, the sepals green to purple, the acute-tipped petals brown-maroon, green or yellow-green. Very hardy!

A final look at two of the pedicellate species. The 2nd May 2004 was mist covered along the Blue Ridge Parkway, but 20 years earlier when travelling south from West Virginia to the Smokies, the weather was beautiful as was the most common of the *Trillium*, *T. grandiflorum* with its open white flowers flushed pink and *T. cernuum* (201/197) whose range is from Newfoundland to Wisconsin and south to the Virginias, a species that prefers cool, low, moist to swampy woodlands where it may grow with the Skunk Cabbage; it tends to hide its usually strongly recurved, thin textured white flowers beneath the leaves and Fred Case considers that it has little to recommend its cultivation.

We were now shown a number of plants growing in the same areas as *Trillium*, beginning with *Sanguinaria canadensis* (226/286), in its single form, an elegant pure white flowered plant. Both *Viola pedata* with black lined white or bi-coloured forms and the very attractive creeping Polygala paucifolia grow in light soils. In contrast, the dwarf, bright blue flowered *Iris verna* and taller *I. cristata* thrive in moist soils in the south-eastern States. *Uvularia perfoliata* (218/399) unlike *U. grandiflora* possesses minute glands on the inner surfaces of the yellow flowers. With tri-lobed leaves *Podophyllum peltatum,* (141/260) an odd looking member of the Berberis family and three-lobed *Arisaema triphyllum* in various colour forms, often cover the forest floor. There are masses of the Eastern Dogwood *Cornus florida* whose flower buds are enclosed during winter by four bracts which turn white in May – there are forms in cultivation with larger white bracts and others with rose-pink and red bracts; all have good autumn colouration. Under deciduous trees there may be yellow flowered *Cypripedium parviflorus var. pubescens* with their bulging pouches (a lovely photo. in sunlight against a very dark background) and in quite dry mixed coniferous forest, white or pink flowered *C. acaule* (228/106, 251/53), distinct from most species in having only basal leaves. In Smokies woodland on cool acidic soils with constant summer moisture, the nodding, greenish-yellow *Clintonia borealis* and white, sometimes speckled red or purple, *C. umbellatum. Kalmia latifolia* the Calico bush or Mountain laurel grows at up to 5000ft. and carries its bright pink flowers in large clusters – even more exquisite are the sugar-pink buds. With it on rocky slopes,

scarlet flowered Silene virginica which has grown in Phil's garden for ten years. Finally three *Rhododendron* on wooded slopes in late May and June – the evergreen *R. catawbiense*, extemely hardy with large trusses of bell-shaped white to lilac-purple flowers, deciduous dead-white to pale pink, fragrant *R. nudiflorum* with long curving anthers and hairs on the tube and *R. calendulaceum* with yellow to scarlet funnel shaped flowers and with its equally vivid autumn foliage, one of the most colourful of wild azaleas.

The talk ended with a reminder that many pitcher plants are no longer to be seen, a mistake to return after 20 years to see the destruction and degradation of habitats – just about 3% remains, while 85% of the native forest of North America has changed. An excellent evening's talk by Phil, enhanced by his and Gwen's superb photography and the use of two projectors in which habitats and close-ups could easily be followed.

There are only two references to Sarracenia in the Bulletin in 1950 79/35, 39 and 1994 257/363, but for in depth information see Adrian Slack's 'Carnivorous Plants' (for which some of the pitcher and trap information above is acknowledged) Ebury Press, London, 1979, ISBN 0262191865, rev. ed. Alpha Books, London, 1988, ISBN 0713630795. D.E.Schnell said in 1985 "It is the best general survey book for a popular audience published to date. It contains a detailed section on cultivation, a list of sources, and a helpful glossary"; Also highly recommended by The International Carnivorous Plant Society:- D'Amato, Peter: "The Savage Garden : Cultivating Carnivorous Plants",Ten Speed Press, Berkeley, California, 1998. ISBN 0898159156, paperbound, $19.95; Schnell, Donald E.: "Carnivorous Plants of the United States and Canada", John F. Blair, Publisher, Winston-Salem, NC, 1976. ISBN 0910244901, hardcover + color dust jacket, $9.50" (The species are described in great detail including key. A wonderful book which can be recommended to everyone"); Temple, Paul: "Carnivorous Plants". Ser.: A Wisley Handbook, Cassell: Royal Horticultural Society, London, 1988 (printing 1989). ISBN 0304311456, paperback, $5.95.(rev. ed. 1993, ISBN 0304320641). ("It's a very good book especially for beginners or intermediate growers") There is a short articles with with 16 photos in the American RGS Bulletin 50.1/41. The RHS has (or did have) a useful leaflet on carnivorous plants.

On the web http://wwwa.sarracenia.com/faq.html the site of The International Carnivorous Plant Society from where there is a huge amount of information on all other genera and on insectivorous plants in general .

'Trilliums' by F.W. Case and R.B. Case (available from the AGS) is an excellent guide to the genus describing both the American and Asiatic species. The Canadian Royal Botanical Gardens (Technical Bulletin 5) is a useful booklet with some coloured photos of the four species native to Ontario. In the AGS Bulletin 201/189 Paul Cristian on the Eastern American Species. In the American RGS Bulletins see 39/53, 108 and on germination 43.1/32, 55.2/137 & 57.1/47

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MEETING NOVEMBER 19th

Our own Bob Charman on Poland (a first for the Group) and Turkey (one of his major interests).