ATLAS OF THE FLORA OF NEW ENGLAND: PAEONIACEAE TO ERICACEAE

RAY ANGELO¹ and DAVID E. BOUFFORD²

Harvard University Herbaria
22 Divinity Avenue
Cambridge, MA 02138-2020
¹rangelo@oeb.harvard.edu
²david_boufford@harvard.edu

ABSTRACT

Dot maps are provided to depict the distribution at the county level of the taxa of Magnoliophyta: Paeoniaceae to Ericaceae (corresponding to Flora of North America, Vol. 8) growing outside of cultivation in the six New England states of the northeastern United States. The maps treat 147 taxa (species, subspecies, varieties, and hybrids, but not forms) based primarily on specimens in the major herbaria of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut, with most data derived from the holdings of the New England Botanical Club Herbarium (NEBC). Brief synonymy (to account for names used in standard manuals and floras for the area), habitat, chromosome information, and common names are also provided.

KEY WORDS: flora, New England, atlas, distribution, Crassulaceae, Ericaceae, Grossulariaceae, Myrsinaceae, Primulaceae, Saxifragaceae

This article is the seventh in a series (Angelo & Boufford 1996, 1998, 2000, 2007, 2010, 2011a) that will present the distributions of the vascular flora of New England in the form of dot distribution maps at the county level (Figure 1). The atlas is posted on the internet at http://neatlas.org, where it will be updated as new information becomes available.

This project encompasses all vascular plants (lycophytes, pteridophytes and spermatophytes) at the rank of species, subspecies, and variety growing independent of cultivation in the six New England states. Hybrids are also included, but forms and other ranks below the level of variety are not. The dots are based on voucher specimens primarily in New England herbaria (of colleges, universities, botanical gardens, and public museums) representing reproducing populations outside of cultivated habitats. This seventh installment includes the families in Magnoliophyta: Paeoniaceae to Ericaceae corresponding to the families treated in Flora of North America, Vol. 8 (Flora of North America Editorial Committee 2009). Of the 147 taxa treated, 45 are not native to the region. Future accounts will treat the distribution of additional non-monocot angiosperms.

The habitat data are distillations from a variety of sources augmented by our own field observations. An attempt was made to indicate habitat information as it applies to a particular taxon in New England rather than to the entire range of the taxon. Such information is omitted where habitat is not indicated on the specimen label and where we also lack personal knowledge of the plant in New England. Omissions of habitat information are for a few introduced taxa and for all hybrids.

We plan to gather this series of articles, together with additional background material, into a separate volume upon completion of all the installments. It is our hope, in the meantime, that these articles will stimulate additional field work to supplement the distributions portrayed in the maps. The New England Botanical Club herbarium has proven to be the most important resource for this project. We are eager to receive information on voucher specimens in public herbaria documenting range extensions and filling county gaps in distributions. Similarly, because the atlas of the New England flora will be continuously updated as new information becomes available, we are eager to receive notification of published corrections of cytological information and new, documented chromosome counts for taxa in the New England flora.
MATERIALS AND METHODS

Materials and methods are as outlined in Angelo and Boufford (1996) and in a web version (Angelo & Boufford 2011b) and are not repeated here.

TAXONOMY AND FORMAT

The taxonomy and nomenclature adopted for this work essentially follow that of the Flora of North America project, except that families, genera, and species are arranged alphabetically. The families and their circumscription do not necessarily reflect current views on relationships or composition. The Angiosperm Phylogeny Website (Stevens 2001 onwards) should be consulted for a continuously updated treatment of families and their inclusive genera. Named and unnamed hybrid taxa are placed alphabetically at the end of the genus in which they occur. Unnamed hybrids combine the names of the progenitors alphabetically by epithet. Taxa that are not native to New England are indicated by uppercase text. Unpublished names are not used, even if publication is pending.

Chromosome numbers are taken primarily from Flora of North America, Vol. 8 (Flora of North America Editorial Committee 2009) and from Goldblatt and Johnson (1979–).

Synonymy is provided primarily with respect to names accepted in standard manuals covering New England published from 1950 onward, including Fernald (1950), Gleason (1952), Gleason and Cronquist (1991), and Seymour (1982). Synonyms have not been provided where the distribution for the synonymized name does not include New England.

The following list (which includes excluded taxa) will aid readers in finding familiar names that have been transferred to other taxa:

Empetraceae => Ericaceae
Monotropaceae => Ericaceae
Primulaceae (in part) => Myrsinaceae
Primulaceae (in part) => Theophrastaceae
Pyrolaceae => Ericaceae
Saxifragaceae (in part) => Grossulariaceae
Saxifragaceae (in part) => Penthoraceae
Arctostaphylos (in part) => Arctous
Cassandra => Chamaedaphne
Cassiope (in part) => Harrimanella
Chiogenes => Gaultheria
Glaux => Lysimachia
Ledum => Rhododendron
Leucothoë (in part) => Eubotrys
Loiseleuria => Kalmia
Naumbergia => Lysimachia
Oxycoccus => Vaccinium
Pyrola (in part) => Orthilia
Saxifraga (in part) => Micranthes
Sedum (in part) => Hylotelephium
Sedum (in part) => Phedimus
Sedum (in part) => Rhodiola
Tillaea => Crassula

The following species have been reported from our area but are excluded for the reasons noted:

Agarista populifolia (Lamarck) Judd [no specimen located; reported from Rhode Island]
Anagallis minima (Linnaeus) E.H.L. Krause (Centunculus pumilis (Swartz) Kuntze) [collected in Worcester Co., Massachusetts; no specimens yet accessioned in herbaria that are the basis for this atlas]

Lysimachia quadriflora Sims [no specimen located; reported from Massachusetts with vouchers at MIN, but vouchers not located there]

Pieris floribunda (Pursh) Bentham & Hooker f. [no voucher for wild occurrence found; reported from Vermont]

Primula wilsonii Dunn var. anisodora (Balfour f. & Forrest) A. J. Richards (P. anisodora Balfour f. & Forrest) [no specimen located; reported from Berkshire Co., Massachusetts; apparently now identified as Primula japonica A. Gray]

Rhododendron columbianum (Piper) Harmaja [a single 1871 specimen from Mt. Washington, NH recently annotated as this species, and far from its known range, is excluded until its status in New England is better understood.]

Rhododendron tomentosum Harmaja [a single 1947 specimen from a bog in Carroll Co., NH recently annotated as this species, and distant from its known range, is excluded until its status in New England is better understood.]

Rhododendron vaseyi A. Gray [no voucher for wild occurrence found; reported from Massachusetts]

Saxifraga hyperborea R. Brown [no specimen located; reported from Mount Washington, New Hampshire]

Styrax japonicus Siebold & Zuccarini [no specimen located; reported from Connecticut (Flora of North America Editorial Committee 2009)]

ANGIOSPERMAE (MAGNOLIOPHYTA) - ANGIOSPERMS

CLETHRACEAE

Clethra alnifolia Linnaeus—Sweet Pepperbush (Figure 2). 2n = 16, 32. Swamps, swampy thickets, damp, sandy woods.

CRASSULACEAE

Crassula aquatica (Linnaeus) Schönland—Common Pigmyweed (Figure 2). 2n = 42 (Iceland). Tidal mud flats, coastal marshes, pond shores, river margins, vernal pools. [C. saginoides (Maximowicz) M. Bywater & Wickens; Tillaea aquatica Linnaeus]

HYLOTELEPHIUM ERYTHROSTICTUM (Miquel) H. Ohba—Garden Stonecrop (Figure 2). 2n = 48. Waste places, disturbed ground, roadsides, pond shores. From eastern Asia, Russia. [SEDUM ALBOROSEUM Baker; S. ERYTHROSTICTUM Miquel; S. SPECTABILE Boreau – misapplied]

HYLOTELEPHIUM SPECTABILE (Boreau) H. Ohba—Butterfly Stonecrop (Figure 2). 2n = 50, 51. Dry, roadsides. From eastern Asia. [SEDUM SPECTABILE Boreau]
HYLOTELEPHIUM TELEPHIUM (Linnaeus) H. Ohba—Witches’ Moneybags (Figure 2). \(2n = 36\). Roadside, waste places, old fields. From northern Eurasia. \([SEDUM TELEPHIUM Linnaeus; S. PURPUREUM (Linnaeus) Schultes]\)

PHEDIMUS AIZOON (Linnaeus) ‘t Hart—(Figure 2). \(2n = 30-32, 56, \text{ca.} 64, 66, 71-124\). Open, rocky places. From eastern and northern Asia. \([SEDUM AIZOON Linnaeus]\)

PHEDIMUS SPURIUS (M. Bieberstein) ‘t Hart—Caucasian Stonecrop (Figure 2). \(2n = 28, 42\). Rocky or sandy road sides, waste places, old fields. \([SEDUM SPURIUM M. Bieberstein; S. STOLONIFERUM – misapplied]\)

Rhodiola rosea Linnaeus—Roserooot (Figure 2). \(2n = 22\). Sea cliffs, rocky ledges. \([Sedum rosea (Linnaeus) Scopoli]\)

SEDUM ACRE Linnaeus—Mossy Stonecrop (Figure 2). \(2n = 40, 60, 80, 100, 120\). Rock outcrops, rock walls, dry, open places. From Europe and Greenland.

SEDUM ALBUM Linnaeus—White Stonecrop (Figure 3). \(2n = 34, 51, 68, 85, 102, 136\). Rocky soil. From Europe.

SEDUM HISPANICUM Linnaeus—Spanish Stonecrop (Figure 3). \(2n = 40\). Roadsides, rocky fields. From Europe.

SEDUM OCHROLEUCUM Chaix—(Figure 3). \(2n = 34, 68, 102\). Roadsides, rocky fields, waste places. From Europe. \([S. ANOPETALUM de Candolle]\)

SEDUM RUPESTRE Linnaeus—Jenny’s Stonecrop (Figure 3). \(2n = 56, 88, 112, 120\). Roadsides, waste places. From Europe. \([S. REFLEXUM Linnaeus]\)

SEDUM SARMENTOSUM Bunge—Stringy Stonecrop (Figure 3). \(2n = \text{ca.} 72\). Roadsides, waste places. From China.

SEDUM SEXANGULARE Linnaeus—Tasteless Stonecrop (Figure 3). \(2n = 74, 111, 148, 185\). Roadsides, waste places. From Europe.

SEDUM TERNATUM Michaux—Wild Stonecrop (Figure 3). \(2n = 32\). Damp roadsides. From farther south or west.

SEMPERVIVUM TECTORUM Linnaeus—Hens-and-chickens (Figure 3). \(2n = 36, 40, 72\). Rocky outcrops, ledges, stone walls, other rocky sites. From Europe.

DIAPENSIACEAE

Diapensia lapponica Linnaeus—Diapensia (Figure 3). \(2n = 12\). Bare, rocky alpine summits or other open, rocky sites at high altitudes.

GALAX URCEOLATA (Poiret) Brummit—Beetleweed (Figure 4). \(2n = 6, 12\). Steep slopes in shade of trees, oak forests. From farther south and west. \([G. APHYLLA Linnaeus – misapplied]\)

EBENACEAE

Diospyros virginiana Linnaeus—Persimmon (Figure 4). \(2n = 60, 90\). Dry woods, old fields.
ERICACEAE

Andromeda polifolia Linnaeus var. latifolia Aiton—Bog Rosemary (Figure 4). \(2n = 48\). Sphagnum bogs. \([A. \text{polifolia var. glaucophylla (Link) de Candolle; } A. \text{glaucophylla Link]}

Arctostaphylos uva-ursi (Linnaeus) Sprengel—Common Bearberry (Figure 4). \(2n = 26, 52\). Dry, open, sandy or rocky soils. \([A. \text{uva-ursi var. coactilis Fernald & J. F. Macbride]}

Arctous alpina (Linnaeus) Niedenzu—Alpine Bearberry (Figure 4). \(2n = 26, 28\). Alpine areas. \([Arctostaphylos alpina (Linnaeus) Sprengel]

CALLUNA VULGARIS (Linnaeus) Hull—Heather (Figure 4). \(2n = 16\). Dry fields, roadsides, damp, sandy sites. From Eurasia.

Chamaedaphne calyculata (Linnaeus) Moench—Leatherleaf (Figure 4). \(2n = 22\). Peaty soil of bogs, swamps, pond margins, barrens and swales. \([C. \text{calyculata var. angustifolia (Aiton) Rehder; } C. \text{calyculata var. latifolia (Aiton) Fernald; Cassandra calyculata (Linnaeus) D. Don var. angustifolia (Aiton) A. Gray; } C. \text{calyculata var. latifolia (Aiton) F. Seymour]}

Chimaphila maculata (Linnaeus) Pursh—Spotted Wintergreen (Figure 4). \(2n = 26\). Dry woods.

Chimaphila umbellata (Linnaeus) W. P. C. Barton subsp. umbellata—Pipsissewa (Figure 4). \(2n = 26\). Dry woods. \([C. \text{umbellata var. cisatlantica S. F. Blake]}

Corema conradii (Torrey) Torrey—Broom-crowberry (Figure 5). \(2n = 26\). Coastal, sandy or rocky soils, pine barrens, exposed, rocky ledges.

Empetrum atropurpureum Fernald & Wiegand—Purple Crowberry (Figure 5). \(2n = 52\). Exposed mountain slopes near treeline. \([E. \text{eamesii Fernald & Wiegand subsp. atropurpureum (Fernald & Wiegand) D. Löve; } C. \text{rubrum Vahl ex Willdenow var. atropurpureum (Fernald & Wiegand) R. D. Good]}

Empetrum nigrum Linnaeus—Black Crowberry (Figure 5). \(2n = 26, 39, 52\). Alpine areas.

Epigaea repens Linnaeus—Trailing Arbutus (Figure 5). \(2n = 24\). Woods, clearings, in sandy, peaty or rocky soil. \([E. \text{repens var. glabriifolia Fernald]}

ERICA CINEREA Linnaeus—Bell Heather (Figure 5). \(2n = 24\). Moors, open woods, roadsides. From Europe.

ERICA TETRALIX Linnaeus—Cross-leaved Heath (Figure 5). \(2n = 24\). Dry, sandy fields, peaty clearings, roadsides. From Europe.

ERICA VAGANS Linnaeus—Cornish Heath (Figure 5). \(2n = 24\). Open, sandy, pine woods. From Europe.

Eubotrys racemosa (Linnaeus) Nuttall—Swamp Sweetbells (Figure 5). \(2n = 22\). Swamps, moist thickets, margins of bogs, ponds, and rivers. \([Leucothoë racemosa (Linnaeus) A. Gray; Leucothoë racemosa var. projecta Fernald]
Gaultheria hispidula (Linnaeus) Muhlenberg ex Bigelow—Creeping Snowberry (Figure 5). $2n = 22$. Sphagnum bogs, mossy coniferous woods and swamps, often on mossy or rotting logs. [Chiogenes hispidula (Linnaeus) Torrey & A. Gray]

Gaultheria procumbens Linnaeus—Checkerberry (Figure 6). $2n = 44, 88$. Dry, acidic woods and clearings.

Gaylussacia baccata (Wangenheim) K. Koch—Black Huckleberry (Figure 6). $2n = 24$. Dry, open woods, thickets, pastures, ledges.

Gaylussacia bigeloviana (Fernald) Sorrie & Weakley—Bog Huckleberry (Figure 6). $2n = 24$. Sphagnum bogs, Sphagnum or Chamaecyparis swamps. [G. dumosa (Andrews) Torrey & A. Gray var. bigeloviana Fernald]

Gaylussacia frondosa (Linnaeus) Torrey & A. Gray—Dangleberry (Figure 6). $2n = 24$. Dry, woods, thickets.

Harrimanella hypnoides (Linnaeus) Colville—Moss-plant (Figure 6). $2n = 32, 48$. Mossy alpine or subalpine areas. [Cassiope hypnoides Linnaeus) D. Don]

Kalmia angustifolia Linnaeus var. angustifolia—Sheep Laurel (Figure 6). $2n = 24$. Wet or dry, acidic, open soil, Sphagnum bogs, rock ledges.

Kalmia latifolia Linnaeus—Mountain Laurel (Figure 6). $2n = 24$. Acidic, rocky or sandy, deciduous woods, thickets.

Kalmia polifolia Wangenheim—Bog Laurel (Figure 6). $2n = 48$. Sphagnum bogs, exposed, rocky areas at high elevations.

Kalmia procumbens (Linnaeus) Gift & Kron—Alpine Azalea (Figure 6). $2n = 24$. Alpine areas. [Loiseleuria procumbens (Linnaeus) Desvaux]

LEUCOTHOË AXILLARIS (Lamarck) D. Don—Coastal Dog-hobble (Figure 7). Swamps. $2n = 22$. From farther south.

LEUCOTHOË FONTANESIANA (Steudel) Sleumer—Mountain Dog-hobble (Figure 7). $2n = 22$. Sandy, pine woods. From farther south.

Lyonia ligustrina (Linnaeus) de Candolle var. ligustrina—Maleberry (Figure 7). $2n = 24$. Swamps, moist thickets, stream and pond margins.

Lyonia mariana (Linnaeus) D. Don—Staggerbush (Figure 7). $2n = 24$. Open, acidic, pine or oak woods.

Moneses uniflora (Linnaeus) A. Gray—Wood-nymph (Figure 7). $2n = 22, 24, 26, 32$. Dry, mossy, rich or rocky woods.

Monotropa hypopitys Linnaeus—Pinesap (Figure 7). $2n = 48$. Leaf mold in woods.

Monotropa uniflora Linnaeus—Indian-pipe (Figure 7). $2n = 32, 48$. Leaf mold in woods.
Orthilia secunda (Linnaeus) House—One-sided Pyrola (Figure 7). $2n = 38$. Rich woods. [Pyrola secunda Linnaeus; P. secunda var. obtusata Turczaninow]

OXYDENDRON ARBOREUM (Linnaeus) de Candolle—Sourwood (Figure 7). $2n = 24$. Woods. From farther south and west

Phyllopoce caerulea (Linnaeus) Babington—Mountain-heath (Figure 8). $2n = 24$. Alpine rocks and peat.

Pterospora andromeda Nuttall—Pinedrops (Figure 8). $2n = 16, 48$. Chiefly humus in pine woods, often in basic soil.

Pyrola americana Sweet—Round-leaved Pyrola (Figure 8). $2n = 46$. Woods. [P. rotundifolia Linnaeus var. americana (Sweet) Fernald]

Pyrola asarifolia Michaux subsp. asarifolia—Pink Pyrola (Figure 8). $2n = 46$. Rich woods, chiefly calcareous soil. [P. asarifolia var. purpurea (Bunge) Fernald]

Pyrola chlorantha Swartz—Green Pyrola (Figure 8). $2n = 46$. Dry woods. [P. virens Schweigger var. virens; P. virens var. convoluta (W. P. C. Barton) Fernald]

Pyrola elliptica Nuttall—Shinleaf (Figure 8). $2n = 46$. Dry woods.

Pyrola minor Linnaeus—Snowline Pyrola (Figure 8). $2n = 46$. Cold, damp, coniferous or boreal woods.

RHODODENDRON CALENDULACEUM (Michaux) Torrey—Flame Azalea (Figure 8). $2n = 52$. Roadsides, woods. From farther south and west.

Rhododendron canadense (Linnaeus) Torrey—Rhodora (Figure 8). $2n = 52$. Bogs, swamps, damp thickets, acid barrens, open, rocky summits and slopes.

RHODODENDRON CATAWBIENSE Michaux—Mountain Rosebay (Figure 9). $2n = 26$. Low or wet woods. From farther south.

Rhododendron groenlandicum (Oeder) Kron & Judd—Labrador Tea (Figure 9). $2n = 26$. Peaty soils, especially Sphagnum bogs and swamps. [Ledum groenlandicum Oeder]

RHODODENDRON JAPONICUM (A. Gray) Suringar—Japanese Azalea (Figure 9). $2n = 26$. Swampy woods. From Japan.

Rhododendron lapponicum (Linnaeus) Wahlberg—Lapland Rosebay (Figure 9). $2n = 26, 52$. Alpine barrens.

Rhododendron maximum Linnaeus—Rosebay (Figure 9). $2n = 26$. Damp woods, swamp margins.

RHODODENDRON MINUS Michaux var. MINUS—Piedmont Rhododendron (Figure 9). $2n = 26$. Woods. From farther south. [R. CAROLINIANUM Rehder]

Rhododendron periclymenoides (Michaux) Shinners—Pinxter-flower (Figure 9). $2n = 26$. Bogs, swamps, wet woods, thickets. [R. nudiflorum (Linnaeus) Torrey – misapplied]
Rhododendron prinophyllum (Small) Millais—Roseshell Azalea (Figure 9). 2n = 26. Damp thickets, banks of streams, wet or dry, rocky woods. [R. roseum (Loiseleur) Rehder – misapplied]

Rhododendron viscosum (Linnaeus) Torrey—Swamp Azalea (Figure 9). 2n = 26. Swampy thickets, shores, damp clearings.

Vaccinium angustifolium Aiton—Early Lowbush Blueberry (Figure 10). 2n = 48. Openings, wood borders, old pastures, dry, open barrens, peats, and rocks. [V. angustifolium var. hypolasium Fernald; V. angustifolium var. laevifolium House; V. angustifolium var. nigrum (Alph. Wood) Dole; V. britonii Porter ex E. P. Bicknell; V. lamarckii Camp]

Vaccinium boreale I. V. Hall & Aalders—Northern Blueberry (Figure 10). 2n = 24. Alpine heaths and meadows, open, rocky uplands.

Vaccinium caespitosum Michaux—Dwarf Bilberry (Figure 10). 2n = 24. Alpine and subalpine areas, but also rocky shores at lower elevations.

Vaccinium corymbosum Linnaeus—Highbush Blueberry (Figure 10). 2n = 24, 48, 72. Swamps, bogs, shores, low woods, dry uplands. [V. corymbosum var. albiflorum (Hooker) Fernald; V. corymbosum var. glabrum A. Gray; V. caesariense Mackenzie; NOTE; Our treatment differs from Flora of North America, Volume 8 (Flora of North America Editorial Committee 2009) in that we treat V. fuscatum Aiton separately, based on the judgment of some botanists (e.g., Uttal 1987; Ward 1974) and one of us (Boufford).]

Vaccinium fuscatum Aiton—Black Highbush Blueberry (Figure 10). 2n = ? Swamps, bogs, low woods. [V. atroccoccum (A. Gray) A. Heller; See note under preceding taxon.]

Vaccinium macrocarpon Aiton—Large Cranberry (Figure 10). 2n = 24. Bogs, swamps, wet shores. [Oxycoccus macrocarpus (Aiton) Persoon]

Vaccinium myrtilloides Michaux—Velvetleaf Blueberry (Figure 10). 2n = 24. Margins of woods, thin woods, bogs, clearings.

Vaccinium oxyccocus Linnaeus—Small Cranberry (Figure 10). 2n = 24, 48, 72. Sphagnum bogs. [V. oxyccocus var. ovalifolium Michaux; Oxycoccus palustris Persoon var. palustris; O. palustris var. ovalifolius (Michaux) F. Seymour]

Vaccinium pallidum Aiton—Late Lowbush Blueberry (Figure 10). 2n = 24, 48, Dry fields, dry, open woods, clearings. [V. vacillans Kalm ex Torrey var. vacillans; V. vacillans var. crinitum Fernald]

Vaccinium stamineum Linnaeus—Deerberry (Figure 11). 2n = 24. Dry, open woods, thickets, clearings.

Vaccinium uliginosum Linnaeus—Alpine Bilberry (Figure 11). 2n = 24, 48, 72. Rocky or peaty barrens, upper slopes of mountains, alpine thickets. [V. uliginosum var. alpinum Bigelow]

Vaccinium vitis-idaea Linnaeus—Mountain Cranberry (Figure 11). 2n = 24. Rocky or dry, peaty soil, chiefly in exposed habitats at higher altitudes. [V. vitis-idaea var. minus Loddiges, G. Loddiges, & W. Loddiges]
Vaccinium hybrids—

*Vaccinium angustifolium* Aiton × *V. myrtilloides* Michaux—(Figure 11).

*Vaccinium angustifolium* Aiton × *V. uliginosum* Linnaeus—(Figure 11).

*Vaccinium × atlanticum* E. P. Bicknell (*pro sp.*)—(Figure 11). [*V. angustifolium* Aiton × *V. corymbosum* Linnaeus]

*Vaccinium boreale* I. V. Hall & Aalders × *V. myrtilloides* Michaux—(Figure 11).

*Vaccinium caespitosum* Michaux × *V. myrtilloides* Michaux—(Figure 11).

*Vaccinium corymbosum* Linnaeus × *V. fuscatum* Aiton—(Figure 11).

*Vaccinium corymbosum* Linnaeus × *V. myrtilloides* Michaux—(Figure 12).

*Vaccinium corymbosum* Linnaeus × *V. pallidum* Aiton—(Figure 12).

*Vaccinium fuscatum* Aiton × *V. pallidum* Aiton—(Figure 12).

**GROSSULARIACEAE**

*Ribes americanum* Miller—Wild Black Currant (Figure 12). 2n = 16. Rich, wet thickets and slopes.

*RIBES AUREUM* Pursh var. *VILLOSUM* de Candolle—Buffalo Currant (Figure 12). 2n = 16. Old house sites, roadsides. From farther west. [*R. ODORATUMS* H. L. Wendland]

*Ribes cynosbati* Linnaeus—Prickly Gooseberry (Figure 12). 2n = 16. Rich, open, usually moist, woods

*Ribes glandulosum* Grauer—Skunk Currant (Figure 12). 2n = 16. Wet woods and clearings.

*Ribes hirtellum* Michaux—Smooth Gooseberry (Figure 12). 2n = 16. Rocky woods, swamps. [*R. hirtellum* var. *calcicola* (Fernald) Fernald; *R. hirtellum* var. *saxosum* (Hooker) Fernald]

*Ribes lacustre* (Persoon) Poiret—Bristly Black Currant (Figure 12). 2n = 16. Cold woods and swamps.

*RIBES MISSOURIENSE* Nuttall—Missouri Gooseberry (Figure 13). 2n = 16. Roadsides. From farther west.

*RIBES NIGRUM* Linnaeus—Garden Black Currant (Figure 13). 2n = 16. Thickets, old house sites. From Eurasia.

*Ribes rotundifolium* Michaux—Appalachian Gooseberry (Figure 13). 2n = ? Open rocky places and thickets.

*RIBES RUBRUM* Linnaeus—Red Garden Currant (Figure 13). 2n = 16. Old house sites, thickets, riverbanks, open woods, roadsides. From Europe. [*R. sativum* (Reichenbach) Syme]

*Ribes triste* Pallas—Wild Red Currant (Figure 13). 2n = 16. Swampy woods, subalpine ravines.
**RIBES UVA-CRISPA** Linnaeus—European Gooseberry (Figure 13). 2n = 16. Fields, roadsides, thickets, woods. From Europe and northern Africa. [*R. GROSSULARIA* Linnaeus]

**MYRSINACEAE**

*ANAGALLIS ARVENSIS* Linnaeus—Scarlet Pimpernel (Figure 13). 2n = 40. Dry, sandy, waste fields. From Eurasia. [*A. ARVENSIS* var. CAERULEA (Linnaeus) Gouan]

*Lysimachia ciliata* Linnaeus—Fringed Loosestrife (Figure 13). 2n = 34, 92, 96, 100, 108, 112. Moist thickets, rich woods and shores, roadsides. [*Steironema ciliatum* (Linnaeus) Baudo]

*LYSIMACHIA CLETHROIDES* Duby—Gooseneck Loosestrife (Figure 13). 2n = 24. Moist meadows, woodland margins, open thickets. From eastern Asia.

*Lysimachia hybrida* Michaux—Lowland Loosestrife (Figure 14). 2n = 34. Swamps, shores.

*Lysimachia maritima* (Linnaeus) Galasso, Banfi & Soldano—Sea Milkwort (Figure 14). 2n = 30, 60. Saline or brackish shores, salt marshes. [*Glaux maritima* Linnaeus var. *maritima*; *G. maritima* var. *obtusifolia* Fernald]

*LYSIMACHIA NUMMULARIA* Linnaeus—Moneywort (Figure 14). 2n = 30, 32, 43 (Europe). Damp roadsides, wet meadows, shores. From Eurasia.

*LYSIMACHIA PUNCTATA* Linnaeus—Garden Loosestrife (Figure 14). 2n = 30. Roadsides, old house sites, waste ground, old fields. From Europe.

*Lysimachia quadrifolia* Linnaeus—Whorled Loosestrife (Figure 14). 2n = 84. Open woods, clearings, roadsides, thickets.

*Lysimachia terrestris* (Linnaeus) Britton, Sterns & Poggenberg—Swamp Candles (Figure 14). 2n = 84. Swamps, shores, low, wet ground, roadside ditches. [*L. terrestris* var. *ovata* (E. L. Rand & Redfield) Fernald]

*Lysimachia thyrsiflora* Linnaeus—Tufted Loosestrife (Figure 14). 2n = 40, 42, 54. Bogs, cold swamps, marshes. [*Naumburgia thyrsiflora* (Linnaeus) Reichenbach]

*LYSIMACHIA VULGARIS* Linnaeus—Garden Loosestrife (Figure 14). 2n = 28, 42, 56, 84 (Europe). Wet roadsides, swampy thickets, waste places, old house sites. From coastal Europe.

—*Lysimachia* hybrids—

*Lysimachia × commixta* Fernald—(Figure 14). [*L. terrestris* (Linnaeus) Britton, Sterns & Poggenberg × *L. thyrsiflora* Linnaeus]

*Lysimachia × producta* Fernald (pro sp.)—(Figure 15). Bogs, swamps, open, moist woods, damp thickets, shores. [*L. quadrifolia* Linnaeus × *L. terrestris* (Linnaeus) Britton, Sterns & Poggenberg]

*Trientalis borealis* Rafinesque—Starflower (Figure 15). 2n = 96. Woods, usually dry.
PAEONIACEAE

**PAEONIA LACTIFLORA** Pallas—Chinese Peony (Figure 15). $2n = 10$. Waste places, old house sites. From eastern Asia.

**PAEONIA OFFICINALIS** Linnaeus—Garden Peony (Figure 15). $2n = 20$. Old fields and orchards. From Europe.

PENTHORACEAE

*Penthorum sedoides* Linnaeus—Ditch-stonecrop (Figure 15). $2n = 18$. Wet, low, open ground, shores, marshes, streambanks.

PRIMULACEAE

**ANDROSACE OCCIDENTALIS** Pursh—Western Rock-jasmine (Figure 15). $2n = 20$. Waste places. From farther west.

*Hottonia inflata* Elliott—American Featherfoil (Figure 15). $2n = 22$. Muddy ponds, pools, swamps, backwaters of streams.

**PRIMULA JAPONICA** A. Gray—Japanese Primrose (Figure 15). $2n = 44$. Wet woods. From Japan. [Including the various cultivars to which this name is applied.]

*Primula laurentiana* Fernald—Bird’s-eye Primrose (Figure 15). $2n = 72$. Ledges, meadows, shores, chiefly calcareous.

*Primula mistassinica* Michaux—Dwarf Canadian Primrose (Figure 16). $2n = 18$. Calcareous cliffs, shores, and meadows.

**PRIMULA VERIS** Linnaeus—Cowslip (Figure 16). $2n = 22$ (Europe). Shaded slopes, often in calcareous soil. From Europe. [*P. OFFICINALIS* (Linnaeus) Hill]

SARRACENIACEAE

**SARRACENIA FLAVA** Linnaeus—Trumpets (Figure 16). $2n = 26$. Floating *Sphagnum* mats. From farther south.

*Sarracenia purpurea* Linnaeus subsp. *purpurea*—Common Pitcher-plant (Figure 16). $2n = 26$. Peaty soil of bogs, swamps and pond margins.

SAXIFRAGACEAE

**ASTILBE JAPONICA** (C. Morren & Decaisne) A. Gray—False Spiraea (Figure 16). $2n = 36$. Waste places, roadsides. From Japan.

*Chrysosplenium americanum* Schweinitz ex Hooker—American Golden Saxifrage (Figure 16). $2n = 18, 24$. Springs, swampy woods, cold, wet places.

*Heuchera americana* Linnaeus var. *americana*—Rock-geranium (Figure 16). $2n = 14$. Rich, wet woods.
Micranthes foliolosa (R. Brown) Gornall—Leafy Saxifrage (Figure 16). $2n = 56$. Mossy, alpine rocks. [Saxifraga stellaris Linnaeus var. comosa Retzius]

Micranthes pensylvanica (Linnaeus) Haworth—Swamp Saxifrage (Figure 16). $2n = 56, 84, 112$. Swamps, wet meadows, boggy thickets. [Saxifraga pensylvanica Linnaeus var. pensylvanica; S. pensylvanica var. purpuripetala (A. M. Johnson) Bush]

Micranthes virginiensis (Michaux) Small—Early Saxifrage (Figure 17). $2n = 20$ (± 0-6 supernumeraries), 38. Open rocky woods, rock outcrops, ledges, rocky hillsides. [Saxifraga virginiensis Michaux]

Mitella diphylla Linnaeus—Fairy-cup (Figure 17). $2n = 14$. Rich woods.

Mitella nuda Linnaeus—Naked Miterwort (Figure 17). $2n = 14, 28$. Wet woods, swamps, often in moss. [M. prostrata Michaux]

Saxifraga aizoides Linnaeus—Yellow Mountain Saxifrage (Figure 17). $2n = 26$. Calcareous cliffs.

Saxifraga cernua Linnaeus—Nodding Saxifrage (Figure 17). $2n = 24, 36, 48, 52, 56, 60, 70, 72$. Wet ledges at high altitude.

Saxifraga oppositifolia Linnaeus subsp. oppositifolia—Purple Mountain Saxifrage (Figure 17). $2n = 26, 39, 48, 52$. Calcareous cliffs.

Saxifraga paniculata Miller—White Mountain Saxifrage (Figure 17). $2n = 28$. Rocky ledges, often calcareous. [S. aizoön Jacquin var. neogaea Butters]

Saxifraga rivularis Linnaeus subsp. rivularis—Alpine Brook Saxifrage (Figure 17). $2n = 52$. Wet, mossy, alpine areas.

Tiarella cordifolia Linnaeus—Foamflower (Figure 17). $2n = 14$. Rich, moist, deciduous woods.

**STYRACACEAE**

Halesia carolina Linnaeus—Carolina Silverbell (Figure 18). $2n = 24$. Moist, deciduous woods, roadsides. From farther south and west. [H. tetraptera J. Ellis]

**SYMPLOCACEAE**

Symlocos paniculata Miquel—Sapphire-berry (Figure 18). $2n = 22$. Swamp margins. From Asia.

**THEOPHRASTACEAE**

Samolus parviflorus Rafinesque—Seaside Brookweed (Figure 18). $2n = 26$. Tidal shores, wet places. [S. floribundus Kunth]

**ACKNOWLEDGMENTS**

We thank the curators and directors of the herbaria of the New England Botanical Club, the Harvard University Herbaria, the University of Massachusetts, the University of Vermont, and the
University of Connecticut for allowing access to their collections. For the University of Maine herbarium we used their exceptional online database of Maine specimens. We are grateful also to Karen Searcy for facilitating access to the herbarium and to the notebooks of Harry E. Ahles at the University of Massachusetts (Amherst) and for kindly answering requests for information after our visit. James Hinds also generously checked information on voucher specimens at the University of Maine (Orono). The following persons also checked certain records for us at their respective institutions: Janet Sullivan, Walter Judd, and Anita F. Cholewa. In particular we thank the following individuals for repeated checking of specimens at their institution: Robert Capers of the University of Connecticut and Lisa I. Palmer of Dartmouth College.

**LITERATURE CITED**

(general references listed in our previous articles are not repeated here)


Stevens, P.F. 2001 onwards. Angiosperm Phylogeny Website, version 9, June 2008 [and more or less continuously updated since]. <http://www.mobot.org/MOBOT/research/APweb/).


Figure 1. Key map for counties of the New England states (and Mt. Desert Island, Maine; Block Island, Rhode Island; arbitrary divisions of larger Maine counties and of Coös County, New Hampshire).
Clethra alnifolia

Crassula aquatica

HYLOTELEPHIUM ERYTHROSTICTUM

HYLOTELEPHIUM SPECTABILE

HYLOTELEPHIUM TELEPHIUM

PHEDIMUS AIZOON

PHEDIMUS SPURIUS

Rhodiola rosea

SEDUM ACRE

Figure 2. Distribution maps.
Figure 3. Distribution maps.
Figure 4. Distribution maps.
Figure 5. Distribution maps.
Figure 6. Distribution maps.
Figure 7. Distribution maps.
Figure 8. Distribution maps.
Figure 9. Distribution maps.
Vaccinium angustifolium

Vaccinium boreale

Vaccinium caespitosum

Vaccinium corymbosum

Vaccinium fuscatum

Vaccinium macrocarpon

Vaccinium myrtilloides

Vaccinium oxycoccus

Vaccinium pallidum

Figure 10. Distribution maps.
Figure 11. Distribution maps.
Figure 12. Distribution maps.
Figure 13. Distribution maps.
Figure 14. Distribution maps.
Figure 15. Distribution maps.
Figure 16. Distribution maps.
Figure 17. Distribution maps.
Figure 18. Distribution maps.