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Corallorhiza and its Historical Background Part III: Checklist

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This checklist is based on the comprehensive monograph of *Corallorhiza* by Freudenstein [Freudenstein, J. V. 1997. A monograph of *Corallorhiza* (Orchidaceae). Harvard Pap. Bot. 1(10): 5–51]. Except for the first descriptions of the generic names (Chatelain, Gagnebin, and Ascherson), the same, currently accepted spelling is used.

Corallorhiza A. Chatelain
Specimen Inaugurale de Corallorhiza Quod Jussu et Authoritate Gratiosi Medicorum Ordinis pro Summis in Inclyta Rauracorum Universitate Honoribus et Privilegiis Doctoralibuslegitime Obtinendi. 1760. p.8

Corallorrhiza A. Gagnebin
Acta Helvetica, Physico-Mathematico-Anatomico-Botanico-Medica. 1755. 2:61

Coralliorhiza P. Ascherson
Flora Brandenburgensis. 1864. p.697

Rhizocorallon A. Gagnebin
Acta Helvetica, Physico-Mathematico-Anatomico-Botanico-Medica. 1755. 2:61

Cladorhiza maculata Rafinesque
American Monthly Magazine and Critical Review. 1917. 1:429
Syn. of *Corallorhiza maculata* (Rafinesque) Rafinesque

Corallorhiza anandae Malhotra & Balodi
Bulletin of the Botanical Survey of India (BOBSI). 1984[1985]. 26:108
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza arizonica S. Watson
Proceedings of the American Academy of Arts and Sciences, New ser. 1882. 17:379
Syn. of *Hexalectris spicata* (Walter) Barnhart var. *arizonica* (S. Watson) Catling & Engel.

Corallorhiza bentleyi Freundenstein
Novon 1999. 9:511 – 513.

Corallorhiza bigelovii S. Watson
Proceedings of the American Academy of Arts and Sciences. 1877. 12:275
Syn. of *Corallorhiza striata* var. *vreelandii* (Rydberg) L.O. Williams

Corallorhiza bulbosa A. Richard & Galeotti
Annales des Sciences Naturelles, Botanique. 1845. 3:19

Corallorhiza corallorhiza (L.) Karsten
Deutsche Flora Pharmaceutisch-medicinische Botanik, ein Grundriss der Systematischen Botanik zum Selbststudium fuer Aerzte, Apotheker und Botaniker. 1881. 5:448
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza corallorhiza (L.) MacMillan
The Metaspermae of the Minnesota Valley. 1892. p.174
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza corallorhiza ssp. *coloradensis* Cockerell
Torreya. 1916. 16(10):231
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza dentata Host
Flora Austriaca. 1831. 2:547
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza ekmanii Mansfeld in Urban
Arkiv foer Botanik. 1929. 22A(8):12

Corallorhiza ehrenbergii Reichb.f.
Linnaea. 1849. 22:833
Syn. of *Corallorhiza striata* var. *vreelandii* (Rydberg) L.O. Williams

Corallorhiza elliptica Schlechter
Beihefte zum Botanischen Centralblatt. 1918. 36Ab:410
Syn. of *Corallorhiza wisteriana* S.W. Conrad

Corallorhiza ericetorum Drejer
Flora Danica. 1843. 14(40):7, t.2364
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza fimbriata Schlechter

Feddes Repertorium. 1925. 21:339
Syn. of *Corallorhiza wisteriana* S.W. Conrad

Corallorhiza foliosa Lindley
In J.F. Royle, Illustrations of the Botany and other Branches of the Natural History of the Himalayan Mountains and of the Flora of Kashmere. 1839. p.362
Syn. of *Oreorchis foliosa* (Lindley) Lindley

Corallorhiza grabhami Cockerell
Torreya. 1903. 3(9):140
Syn. of *Corallorhiza maculata* var. *occidentalis* (Lindley) Ames

Corallorhiza grandiflora A. Richard & Galeotti
Annales des Sciences Naturelles, Botanique. 1845. 3:19
Syn. of *Hexalectris grandiflora* (A. Richard & Galeotti) L.O. Williams in Johnston

Corallorhiza halleri L.C.M. Richard
De Orchideis Europaeis Annotationes 1817:39 (Preprint of Mémoires du Musée d'Histoire Naturelle. 1818. 6:61)
Syn. of *Corallorhiza trifida* Chatelain

Corallorrhiza hiemalis (Muhlenberg ex Willdenow) Nuttall
Genera of North American Plants and Catalogue of the Species to the year 1817. 1818. 2:198
Syn. of *Aplectrum hyemale* (Muhlenberg ex Willdenow) Nuttall

Corallorhiza hortensis Suksdorf
Werdenda, Beitraege zur Pflanzenkunde. 1927. 1:18
Syn. of *Corallorhiza wisteriana* S.W. Conrad

Corallorhiza indica Lindley
Journal of the Proceedings of the Linnean Society of London, Botany. 1859. 3:26
Syn. of *Oreorchis indica* (Lindley) Hook.f

Corallorrhiza innata R. Brown in Aiton
Hortus Kewensis or a Catalogue of the Plants Cultivated in the Royal Botanic Garden at Kew; Classis XX, Gynandria, Monandria - Dinandria, Edition 2. 1813. p.209
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza innata forma *anomala* Camus, Bergon & Camus

E.G. Camus, P. Bergon, and A. Camus: Monographie des Orchidées. 1908. p382
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza innata var. *discolor* Reichb
Flora Germanica Excurs. 1830. 1:131
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza innata var. *ericetorum* (Drejer) Reichb.f.
Icones Florae Germanicae et Helveticae. 1851. 13/14:160
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza innata var. *virescens* E. Farr
Contributions from the Botanical Laboratory of the Morris Arboretum, University of Pennsylvania. 1904. 2(3):425
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza intacta Chamisso
Linnaea 3:1828.35
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza integra Chatelain
Specimen Inaugurale de Corallorhiza Quod Jussu et Authoritate Gratiosi Medicorum Ordinis pro Summis in Inclyta Rauracorum Universitate Honoribus et Privilegiis Doctoralibuslegitime Obtinendi. 1760. p.11
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza involuta J.M. Greenman
Proceedings of the American Academy of Arts and Sciences. 1898. 33:474
Syn. of *Corallorhiza striata* var. *involuta* (Greenman) Freudenstein

Corallorhiza jacquemontii Decaisne
In Victor Jacquemont, Voyage Botanique. 1844. p.165
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza leimbachiana Suksdorf
Allgemeine Botanische Zeitschrift. 1906. 12:42
Syn. of *Corallorhiza maculata* var. *occidentalis* (Lindley) Ames

Corallorhiza macraei Gray
Manual of the Botany of the Northern United States, Including the District East of the Missisippi and North of North Carolina and Tennessee Arranged According to the Natural System. 1856. p.453

Syn.of *Corallorhiza striata* Lindley var. *striata*

Corallorrhiza macrantha Schlechter
Beihefte zum Botanischen Centralblatt. 1918. 36Ab 2:411

Corallorhiza maculata (Rafinesque) Rafinesque
American Monthly Magazine and Critical Review. 1817. 2:119

Corallorhiza maculata (Rafinesque) Greene
Leaflets of Botanical Observation and Criticism. 1908. 1:237
Syn. of *Corallorhiza maculata* (Rafinesque) Rafinesque

Corallorhiza maculata forma *flavida* (Peck) Farwell
American Midland Naturalist. 1927. 10:208
Syn. of *Corallorhiza maculata* (Rafinesque) Rafinesque var. *maculata*

Corallorhiza maculata forma *intermedia* (Farwell) Farwell
American Midland Naturalist. 1927. 10:208
Syn. of *Corallorhiza maculata* var. *occidentalis* (Lindley) Ames

Corallorhiza maculata forma *immaculata* (M.E. Peck) J.T. Howell
Marin Flora, Supplement. 1969. p.363
Syn. of *Corallorhiza maculata* var. *occidentalis* (Lindley) Ames

Corallorhiza maculata forma *punicea* (Bartlett) Weatherby & J. Adams
Contributions from the Gray Herbarium of Harvard University. 1945. 158:39
Syn. of *Corallorhiza maculata* var. *occidentalis* (Lindley) Ames

Corallorhiza maculata var. *flavida* (Peck) Bartlett
Rhodora. 1922. 24:147
Syn. of *Corallorhiza maculata* (Rafinesque) Rafinesque var. *maculata*

Corallorhiza maculata var. *flavida* (Waters) Cockerell
Torreya. 1916. 16:231 (nom. illeg.)
Syn. of *Corallorhiza maculata* (Rafinesque) Rafinesque var. *maculata*

Corallorhiza maculata var. *fusca* Bartlett
Rhodora. 1922. 24:147
Syn. of *Corallorhiza maculata* var. *occidentalis* (Lindley) Ames

Corallorhiza maculata var. *immaculata* Peck
Leaflets of Western Botany. 1954. 7(8):177
Syn. of *Corallorhiza maculata* var. *occidentalis* (Lindley) Ames

Corallorhiza maculata var. *intermedia* Farwell
Annual Reports of the Michigan Academy of Science. 1917. 19:247
Syn. of *Corallorhiza maculata* var. *occidentalis* (Lindley) Ames

Corallorhiza maculata var. *maculata* forma *rubra* P.M. Brown
North American Native Orchid Journal. 1995. 1(1):8
Syn. of *Corallorhiza maculata* (Rafinesque) Rafinesque var. *maculata*

Corallorhiza maculata var. *mexicana* (Lindley) Freudenstein
Harvard Papers in Botany. 1997. 10:45

Corallorhiza maculata var. *occidentalis* (Lindley) Ames
Enumeration of Orchids from the U.S. and Canada. 1924. p.22

Corallorhiza maculata var. *occidentalis* (Lindley) Schrenk
Die Orchidee. 1977. 28:99
Syn. of *Corallorhiza maculata* var. *occidentalis* (Lindley) Ames

Corallorhiza maculata var. *occidentalis* forma *aurea* P.M. Brown
North American Native Orchid Journal. 1995. 1(3):195
Syn. of *Corallorhiza maculata* var. *occidentalis* (Lindley) Ames

Corallorhiza maculata var. *punicea* Bartlett;
Rhodora. 1922. 24:147
Syn. of *Corallorhiza maculata* var. *occidentalis* (Lindley) Ames

Corallorhiza maculata ssp. *mertensiana* (Bongard) Calder & Taylor
Canadian Journal of Botany. 1965. 43:1393
Syn. of *Corallorhiza mertensiana* Bongard

Corallorhiza maculata ssp. *occidentalis* (Lindley) Cockerell
Torreya. 1916. 16:232
Syn. of *Corallorhiza maculata* var. *occidentalis* (Lindley) Ames

Corallorhiza mertensiana Bongard
Mèmoires de l'Academie Imperiale des Sciences de St.-Petersburg, Ser.6, Sciences Mathematiques, Physiques et Naturelles. 1831. 2:165.

Corallorhiza mertensiana forma *albolabia* P.M.Brown
North American Native Orchid Journal. 1995. 1(1):197
Syn. of *Corallorhiza mertensiana* Bongard

Corallorhiza mertensiana forma *pallida* P.M. Brown
North American Native Orchid Journal. 1995. 1(3):195
Syn. of *Corallorhiza mertensiana* Bongard

Corallorhiza mexicana Lindley
The Genera and Species of Orchidaceous Plants. 1840. p.534
Syn. of *Corallorhiza maculata* var. *mexicana* (Lindley) Freudenstein

Corallorhiza micrantha A.W. Chapman
Flora of the Southern United States Containing Abridged Descriptions of the Flowering Plants and Ferns of Tennessee, North and South Carolina, Georgia, Alabama, Mississippi, and Florida, Arranged According to the Natural System. 1860. p. 454
Syn. of *Corallorrhiza odontorhiza* (Willdenow) Poiret var. *odontorhiza*

Corallorhiza montana Rafinesque
Herbarium Rafinesquianum. 1833. p.75
Uncertain name

Corallorhiza multiflora Nuttall
Journal of the Academy of Natural Sciences of Philadelphia. 1823. 3:138
Syn. of *Corallorhiza maculata* (Rafinesque) Rafinesque var. *maculata*

Corallorhiza multiflora var. *flavida* Peck
Annual Report of the New York State Museum. 1897. 50:126
Syn. of *Corallorhiza maculata* (Rafinesque) Rafinesque var. *maculata*

Corallorhiza multiflora var. *occidentalis* Lindley
The Genera and Species of Orchidaceous Plants. 1840. 2:534
Syn. of *Corallorhiza maculata* var. *occidentalis* (Lindley) Ames

Corallorhiza multiflora var. *sulphurea* Suksdorf
Allgemeine Botanische Zeitschrift 1906. 12:42
Syn. of *Corallorhiza maculata* (Rafinesque) Rafinesque var. *maculata*

Corallorhiza nemoralis Swartz
Summa Vegetabilium Scandinaviae Systematicae Coordinatum. 1814. p.32 (nomen nudum)
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza neotia Scopoli
Flora Carniolica Exhibiens Plantas Carnioliae Indigenas et Distributas in Classes, Genera,Species, Varietates Ordine Linnaeano. 1772. 2:207
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza ochroleuca Rydberg
Bulletin of the Torrey Botanical Club. 1904. 31:402
Syn. of *Corallorhiza striata* var. *vreelandii* (Rydberg) L.O. Williams

Illustration of *Corallorhiza multiflora* from W.J. Hooker's *Exotic Flora* (1827).

Corallorhiza odontorhiza (Willdenow) Poiret
Dictionnaire des Science Naturelle. 1918. 10:375

Corallorhiza odontorhiza (Willdenow) Nuttall
Genera of North American Plants and Catalogue of the Species to the Year 1817. 1818. 2:197
Syn. on *Corallorrhiza odontorhiza* (Willdenow) Poiret

Corallorhiza odontorhiza forma *flavida* Wherry
Journal of the Washington Academy of Sciences. 1927. 17:36
Syn. of *Corallorrhiza odontorhiza* (Willdenow) Poiret var. *odontorhiza*

Corallorhiza odontorhiza var. *pringlei* (Greenman) Freudenstein
Harvard Papers in Botany. 1997. 10:24

Corallorhiza odontorhiza var. *pringlei* forma *radia* Freudenstein
Harvard Papers in Botany. 1997. 10:26

Corallorhiza odontorhiza var. *verna* (Nutall) Wood
Class-book of Botany. 1847. p.531
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza patens Lindley
The Genera and Species of Orchidaceous Plants. 1840. p.535
Syn. of *Oreorchis patens* (Lindley) Lindley

Corallorhiza pringlei J.M. Greenman
Proceedings of the American Academy of Arts and Sciences. 1898. 33:475
Syn. of *Corallorhiza odontorhiza* var. *pringlei* (Greenman) Freudenstein

Corallorhiza punctata A. Richard & Galeotti
Annales des Sciences Naturelles, Botanique. 1845. 3:19
Syn. of *Corallorhiza wisteriana* S.W. Conrad

Corallorhiza purpurea L.O. Williams
Bulletin of the Torrey Botanical Club. 1932. 59:427
Syn. of *Corallorhiza mertensiana* Bongard

Corallorhiza spicata (Walter) Tidestrom
In Tidestrom and Kittell, A Flora of Arizona and New Mexico. 1941. p. 733
Syn. of *Hexalectris spicata* (Walter) Barnhart var. *spicata*

Corallorhiza striata Lindley
The Genera and Species of Orchidaceous Plants. 1840. 2:534

Corallorhiza striata forma *fulva* Fernald
Rhodora. 1946. 48:197
Syn. of *Corallorhiza striata* var. *vreelandii* (Rydberg) L.O. Williams

Corallorhiza striata var. *flavida* T.K. Todsen & T.A. Todsen
Southwestern Naturalist. 1971. 16:122
Syn. of *Corallorhiza striata* var. *vreelandii* (Rydberg) L.O. Williams

Corallorhiza striata var. *involuta* (Greenman) Freudenstein
Harvard Papers in Botany. 1997. 10:15

Corallorhiza striata var. *striata* forma *eburnea* P.M. Brown
North American Native Orchid Journal. 1995. 1(1):9
Syn. of *Corallorhiza striata* Lindley

Corallorhiza striata var. *vreelandii* (Rydberg) L.O. Williams
Annals of the Missouri Botanical Garden. 1934. 21:343

Corallorhiza trifida Chatelain
Specimen Inaugurale de Corallorhiza Quod Jussu et Authoritate Gratiosi Medicorum Ordinis pro Summis in Inclyta Rauracorum Universitate Honoribus et Privilegiis Doctoralibuslegitime Obtinendi. 1760. p. 8

Corallorhiza trifida forma *ericetorum* (Drejer) Soo
Botanisches Archiv. 1929. 22:112
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza trifida forma *integra* (Chatelain) Soo
Botanisches Archiv. 1929. 22:112
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza trifida ssp. *virescens* (Drejer) Lojtnant
Flora Fauna (Arhus). 1996. 101(2):71
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza trifida var. *ericetorum* (Drejer) Schlechter
Rep. Spec. Nov. Regn. Veg., Sonderbeiheft A. p.304
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza trifida var. *integra* (Chatelain) Schinz & Thellung
Vierteljahresschrift der Naturforschenden Gesellschaft in Zuerich. 1908. 53:529
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza trifida var. *verna* (Nuttall) Fernald
Rhodora. 1946. 48:196
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza trifida var. *virescens* (Farr) Farwell
Papers of the Michigan Academy of Science, Arts, and Letters. 1941. 26(1):9
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza unguiculata Rafinesque
Herbarium Rafinesquianum. 1833. p.75
Uncertain name

Corallorhiza vancouveriana Finet
Bulletin de la Société Botanique de France. 1909. 56:100
Syn. of *Corallorhiza maculata* (Rafinesque) Rafinesque var. *maculata*

Corallorhiza verna Nuttall
Journal of the Academy of Natural Sciences of Philadelphia. 1823. 3:136
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza virescens Drejer
Flora Danica. 1843. 14(40):7, t.2363
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza vreelandii Rydberg
Bulletin of the Torrey Botanical Club. 1901. 28:271
Basionym for *Corallorhiza striata* var. *vreelandii* (Rydberg) L.O. Williams

Corallorhiza williamsii Correll
Botanical Museum Leaflets, Harvard University. 1941. 9:152

Corallorhiza wisteriana S.W. Conrad
Journal of the Academy of Natural Sciences of Philadelphia. 1829. 6:145

Corallorhiza wisteriana forma *albolabia* P.M. Brown
North American Native Orchid Journal. 1995. 1(1):9

Syn. of *Corallorhiza wisteriana* S.W. Conrad

Corallorhiza wisteriana forma *rubra* P.M. Brown
North American Native Orchid Journal. 2000. 6(1): 62
Syn. of *Corallorhiza wisteriana* S.W. Conrad

Corallorhiza wyomingensis C.E. Hellmayr & K.J. Hellmayr
Rhodora. 1931. 33:134 – 135
Syn. of *Corallorhiza trifida* Chatelain

Cymbidium corallorhizon (L.) Swartz
Kongl. Vetenskaps Academiens nya Handlingar. 1800. 21:238
Syn. of *Corallorhiza trifida* Chatelain

Cymbidium odontorhizon Willdenow
Species Plantarum. 1805. 4:110
Syn. of *Corallorrhiza odontorhiza* (Willdenow) Poiret

Epidendrum corallorhizon (L.) Poiret
Encyclopaedia Methodique, Botanique suppl. 1. 1810. 1(1):377
Syn. of *Corallorhiza trifida* Chatelain

Epidendrum odontorhizon (Willdenow) Poiret
Encyclopaedia Methodique, Botanique Suppl. 1. 1810. 1(1):377
Syn. of *Corallorrhiza odontorhiza* (Willdenow) Poiret

Epipactis corallorhiza (L.) Crantz
Stirpium Austriacarum. 1769. 4:464
Syn. of *Corallorhiza trifida* Chatelain

Helleborine corallorhiza (L.) F. W. Schmidt
Flora Boemica 1794. 1:79
Syn. of *Corallorhiza trifida* Chatelain

Neottia bigelovii (S. Watson) Kuntze
Revisio Generum Plantarum 1891. 2:674
Syn. of *Corallorhiza striata* var. *vreelandii* (Rydberg) L.O. Williams

Neottia corallorhiza (L.) Kuntze
Revisio Generum Plantarum. 1891. 2:674
Syn. of *Corallorhiza trifida* Chatelain

Neottia ehrenbergii (Reichb.f.) Kuntze
Revisio Generum Plantarum. 1891. 2:674
Syn. of *Corallorhiza striata* var. *vreelandii* (Rydberg) L.O. Williams

Neottia mertensiana (Bongard) Kuntze
Revisio Generum Plantarum. 1891. 2: 674
Syn. of *Corallorhiza mertensiana* Bongard

Neottia mexicana (Lindley) Kuntze
Revisio Generum Plantarum. 1891. 2:674
Syn. of *Corallorhiza maculata* var. *mexicana* (Lindley) Freudenstein

Neottia multiflora (Nuttal) Kuntze (Nuttall)
Revisio Generum Plantarum. 1891. 2:674
Syn. of *Corallorhiza maculata* (Rafinesque) Rafinesque var. *maculata*

Neottia odontorhiza (Willdenow) Kuntze
Revisio Generum Plantarum. 1891. 2:674
Syn. of *Corallorrhiza odontorhiza* (Willdenow) Poiret

Neottia punctata (Richard & Galeotti) Kuntze
Revisio Generum Plantarum 1891. 2:674
Syn. of *Corallorhiza wisteriana* S.W. Conrad

Neottia striata (Lindley) Kuntze
Revisio Generum Plantarum. 1891. 2:674
Syn. of *Corallorhiza striata* Lindley

Ophrys corallorhiza (L.) L.
Species Plantarum. 1753. 2:945
Syn. of *Corallorhiza trifida* Chatelain

Corallorhiza striata;
Photo: Ron Coleman

A European's Encounter with the Newfoundland Orchids

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After some thirty years of fairly intense pursuit of the European native orchids, including publication of a dozen or so articles in the *Orchid Review* in the 1980's, I made a first serious foray in July 2002 into the North American flora accompanied by my Canadian brother. Our target was Newfoundland, reasonably accessible by car or ferry from my brother's home in New Brunswick, and my original inspiration came from Carlyle A. Luer's wonderful book *The Native Orchids of the United States and Canada excluding Florida* (1975), especially his description of massed *Cypripedium calceolus* var. *planipetalum* shivering on the limestone barrens of Cape Norman with Labrador in sight and icebergs drifting by. This, I thought, was something very different from our bland European environment where *Cypripedium* spp. are vanishingly rare, and a change from Mediterranean maquis and English downland.

So we spent six days (16-21 July 2002) travelling up and down the west side of Newfoundland, with the middle two days at the northern tip of the Great Northern Peninsula (GNP), which is where Cape Norman is. Total driving distance in Newfoundland was some 600 miles, but this was no bother at all on the generally excellent and lightly trafficked roads.

The northern tip of Newfoundland is on the same latitude as southern England, but exposed to the Labrador Current instead of the Gulf Stream it is far more 'arctic' in its character and flora, so we expected something quite different and more 'northern' than we had seen in Europe. Our guides were Luer's book, Todd Boland's summary, on the Internet, of Newfoundland's orchids , and a brief discussion with naturalist Jim Golz, a friend of my brother's in Fredericton. And the orchids in Newfoundland proved remarkably easy to find - more so than anywhere I had been in Europe. I think we saw 23 of the 37 species listed by Boland (all but three in flower), and all but five I had never seen before - and we never had to go more than a few hundred yards from the highway. As for timing, we were clearly a bit late in the year for the earlier flowering 'stars' of the flora, notably some *Cypripedium* spp., *Amerorchis rotundifolia*, and *Calypso bulbosa*, and a bit early for the later flowering *Platanthera* spp., but it was a good compromise. We saw something of most of them.

Three general types of habitat accounted for the majority of the orchids we saw: large sphagnum bogs, particularly in the southern parts of the island; forests, generally of fairly open type in the Gros Morne National Park area; and the famous 'limestone barrens,' resembling our own 'limestone pavements' in the Great Northern Peninsula. Each of the three had its own contribution to the

orchid flora, though the two most frequent species, *Platanthera dilatata* and *Platanthera hyperborea* (*aquilonis*?), spanned all three habitats.

In the bogs close to the southern ferry port, we came across the striking and attractive *Platanthera blephariglottis* near the beginning of its flowering season, with the yellowish spheres of the unopened buds contrasting with the gleaming white flowers, a first taste of the remarkable 'fringed' orchids, which (in my eyes anyway) are one of the most striking features of the North American flora. Accompanying these were quantities of the pink flowered *Arethusa bulbosa* with large, single, exotic flowers quite unlike anything we have in Europe. In the bogs a little further north, *Calopogon tuberosus* with its strange, upside-down pink flowers began making an appearance, and in a coastal bog near Stephenville plenty of the 'big pink bog orchid,' *Pogonia ophioglossoides*, was visible, with its large, tropical-looking flowers. Here also were two more 'fringed' orchids, the pink flowered *Platanthera grandiflora* and white flowered *Platanthera lacera*, accompanied by what appeared to be a hybrid between the two. This seemed a botanically rich area, but we only got to it on our way to the ferry and did not have time to explore it properly.

Platanthera blephariglottis

At this point we were about a quarter of the way up the west coast of the island, and the second area, of more forested habitat, was about half way up, in the region of the Gros Morne National Park, where the Long Range Mountains, which run along nearly the whole west side, meet the sea by a series of sheltered creeks. Our attention had been drawn to the Lomond Trail in the south of the Park, and this did indeed prove rewarding. A splendid display of *Cypripedium reginae* greeted us, accompanied by large plants of *Platanthera dilatata*, and in the woods we identified *Cypripedium acaule*, though its flow-

ers had faded. An interesting feature along the trail was a group of *Corallorhiza maculata*, one of the smaller orchids whose flowers are extremely attractive to look at in close-up - a relative, of course, of our own *Corallorhiza trifida*, which we were to see later. We also came across a couple of plants of *Platanthera orbiculata*, clearly recognizable from its two large round leaves lying flat on the ground and from the shape of the flowers with their long, almost straight spur, though these flowers had not yet started to open. It seemed very similar to our European *Platanthera bifolia*. On a trail further north in the Park the large yellow *Cypripedium pubescens* was still in flower, and was accompanied by more *C. reginae*, while another trail yet further north had boggy areas with *Arethusa bulbosa* and plenty of *Platanthera dilatata* and *Platanthera hyperborea*. Here was also a solitary pair of plants of *Platanthera clavellata*; this was the only time we saw this allegedly 'common' plant. We were too early to see it in flower.

Beyond (north of) the Gros Morne National Park we were in the Great Northern Peninsula (GNP), which is the long finger pointing to the north-east and comprises the northern half of the west side of Newfoundland. Soon the limestone barrens began, and these follow the coastal road - the 'Viking Trail'- more or less to the top. These bare, dark limestone areas, with patches of vegetation in more sheltered parts and in cracks, have a special flora, of which perhaps the star is the small, single-flowered lady's slipper traditionally referred to as *Cypripedium calceolus* var. *planipetalum*, though I understand

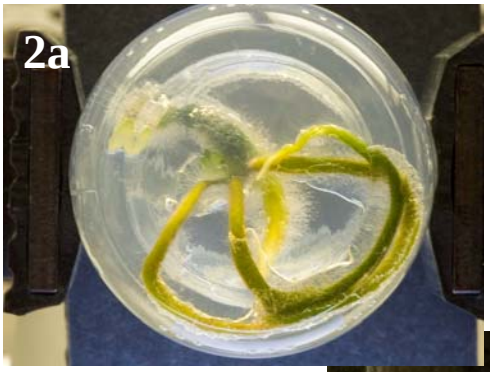
Cypripedium calceolus var. *planipetalum*

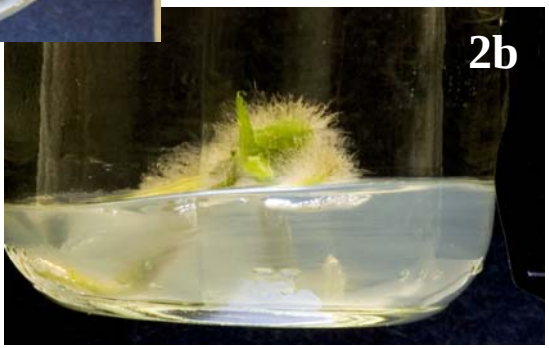
Figures to accompany 'A European's Encounter with the Newfoundland Orchids' by Simon Andrews (page 14).

Corallorhiza maculata

Amerorchis rotundifolia

Figures 1 and 2 from 'Native Plant Tissue Culture at the Atlanta Botanical Garden' by Ron Gagliardo (page 23). **1**: Seedlings of *Cleistes divaricata*. **2a** and **2b**: Seedlings of *Platanthera integrilabia*.





Figures 1, 2, and 3 from 'Wild Orchids of Eno River Valley' by Kelvin Taylor (page 27). **1**: Plants of *Cypripedium parviflorum* var. *parviflorum.* An interesting characteristic was the variety of red spots **(2)**, or lack thereof **(3)**, around the top edge of the opening in the lip.

Figures to accompany ‘Rising Heat, Humidity, and Orchids’ by Tom Sampliner (page 30). Photos by Ron Coleman.

it is now more correctly regarded as an environmentally dwarfed version of *C. pubescens*. The plants had however already finished flowering in the southern part of the barrens when we were at the Table Point Ecological Reserve. But we did see here, along with the *C. calceolus* var. *planipetalum* seed-heads, a few plants of *Platanthera hookeri* in a compact, dwarfed form, quite different from the tall plants I had seen years before in New Brunswick. These were unmistakable with their strange claw-like flowers and spacious pair of basal leaves. Nearby, in a glade in a sparsely wooded area by the main road, was a remarkable range of plants of green-flowered *Platanthera*: some tall, some tiny; some densely flowered and some sparsely flowered. These, I suspect, were all varieties of the *P. hyperborea*/*huronense* group, though I would have needed expert help to sort them out. *Platanthera dilatata* was there as well, and perhaps had contributed hybrid parentage to some of the 'green ones.'

About half way up the GNP, the Port-au-Choix historic site lies on a bare limestone peninsula, and here we came across for the first time the small *C. calceolus* var. *planipetalum* in flower, though many were past their best. These had single, richly yellow flowers (large relative to the plant), with petals somewhat less twisted than the 'normal' type, though we saw few where they were completely flat. These plants were growing in considerable numbers on the more sheltered parts of the barrens. Here was also the northern Newfoundland speciality, *Pseudorchis albida*, a familiar friend from the European alpine region, but confined to Newfoundland as far as North America is concerned. Two plants of another species of *Platanthera* were just beginning to open here: the rather dowdy *Platanthera obtusata*.

Platanthera hookeri

Between Port-au Choix and the far north, we noticed only *P. dilatata* and *P.*

hyperborea by the roadside, but the greatest thrill of all was reserved for the north coast at the Burnt Cape Ecological Reserve, which adjoins the small fishing town of Raleigh. A narrow limestone peninsula points north, and has large areas of bare rock and patches of vegetation, with fine views over the iceberg-studded sea and the coast of Labrador contributing to a most dramatic landscape. The recently established reserve protects a very special flora including several indigenous varieties, and has a good share of arctic-friendly orchids. We saw *C. calceolus* var. *planipetalum* in considerable numbers, many of them still in quite fresh flower, but best of all here was the beautiful miniature *A. rotundifolia*, the only North American orchid with flowers resembling those of our attractive *Orchis* genus in Europe. *Amerorchis rotundifolia* was quite abundant at Burnt Cape and was in full flower. Other interesting orchids here were *Coeloglossum viride*, *Pseudorchis albida* (again), the 'common' coral-root *Corallorhiza trifida*, and the usual varieties of *Platanthera hyperborea* and *Platanthera dilatata*. Rarest of all was *Calypso bulbosa*, but its flowers were unfortunately already fading. We should have been there two weeks earlier. Needless to say our 'finds' at Burnt Cape were enormously enhanced by participation in a tour led by Elizabeth Smith, our most helpful and knowledgeable guide from Raleigh. And we joined the Friends of Burnt Cape - an organization well worth supporting.

After Burnt Cape we visited Cape Norman, my original inspiration for the tour, but it was a bit of a disappointment. We could have done with a guide there too! We managed to find only one small patch of *C. calceolus* var. *planipetalum* in flower, and a scattering of *Platanthera hyperborea* types and *Coeloglossum viride*. But we only had time to explore a very small area near the lighthouse and could see miles and miles of further barrens to the south, unserved by highways. For a future visit?

If Cape Norman itself did not quite come up to expectations, or hopes, the whole trip certainly did, and we saw every species we expected to, as well as several we had never heard of before. And we had plenty of sunshine, which is not always, I understand, an abundant commodity in Newfoundland. It was a wonderful six-day trip among hospitable people, wide open spaces, and a marvellous range of orchid sites. Too many superlatives perhaps, but I mean it. There cannot be a better place for a first go at the North American orchids. A final note for photographers: many species that grow generally in forests further south thrive in the open in Newfoundland. This makes it much easier to take well-focussed pictures!

Native Plant Tissue Culture at the Atlanta Botanical Garden

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The Atlanta Botanical Garden, a private, not-for-profit institution was incorporated in 1976. The garden is located in the heart of midtown Atlanta, convenient to local and international visitors. Under the leadership of Executive Director Mary Pat Matheson, the Garden has become one of the city's most popular destinations, incorporating art and culture into a botanical setting and helping to reconnect people with nature. The mission of the Garden is to maintain plant collections for display, enjoyment, education, conservation, and research. Under this mandate, we are actively pursuing the goals of our mission through many projects and programs. The Garden is not just a pretty place to visit but has significant research and conservation objectives behind the scenes.

Native Plant Conservation

The Conservation Program at the Atlanta Botanical Garden is active in the monitoring, restoration, and conservation of rare plant species and their habitats throughout the southeastern USA. This work began with the arrival in 1987 of Ron Determann, Conservatory and Conservation Director, and focused largely on the unique pitcher plant (*Sarracenia* spp.) bogs that occur in the region. In addition to pitcher plants, these particular habitats are home to some of the rarest native species, including orchids such as *Calapogon tuberosus* (Grass Pink), *Cleistes divaricata* (Spreading Pogonia), and *Pogonia ophioglossoides* (Rose Pogonia). Over the past decade the program has grown to include many other habitats and plant species.

In 1995, the Garden became a charter member of the Georgia Plant Conservation Alliance (GPCA), an umbrella organization dedicated to harnessing horticultural advances for conservation. Thus, the Garden has been instrumental in developing many of the horticultural techniques for rare plant propagation and restoration programs that have been implemented by the GPCA. Our Conservation Coordinator, Carol Denhof, has expanded the program to include over 100 different native plant species including 22 that are federally protected. Partnerships with local landowners, government agencies, and conservation organizations have allowed us to work in many areas in the southeast. These efforts have been vital to the protection and recovery of many rare native species of our region. Examples include *Sarracenia oreophila*, *S. rubra* ssp. *alabamensis*, and *Schwalbea americana* to name a few. Beyond the scope of *in situ* species recovery comes the restoration and maintenance of habitat. This is crucial to the long-term success of any *in situ* restoration project, as these ecosystems are obviously necessary for these species to persist over time. In addi-

tion to bog restoration efforts, the Garden is active in the safeguarding of other very rare native Georgia plant species including: *Torreya taxifolia* (Stinking Cedar), *Elliottia racemosa* (Georgia Plume), and *Sarracenia purpurea* (purple pitcher plant). These high priority projects may significantly promote the long-term survival of these species in the wild.

Plant Tissue Culture at ABG

The completion of the Fuqua Orchid Center and Center for Conservation and Education in 2002 marked a new beginning for conservation research at the Atlanta Botanical Garden and improved our facilities for growing and displaying orchids from around the world. Over 12,000 square feet of public display space were added along with 3,000 square feet of support greenhouse space for growing orchids and other native plants. In addition, the Plant Tissue Culture Lab was moved from an adjacent building to the forefront of display in the Orchid Center. This technologically advanced micropropagation laboratory is being used to propagate many rare native orchid species such as *Cypripedium kentuckiense* (Kentucky Ladyslipper) along with highly prized tropical species such as *Sobralia madisonii*, a magnificent species from northwestern Ecuador.

Plant tissue culture lab at the Atlanta Botanical Garden, Atlanta, Georgia, USA.

A floor-to-ceiling glass wall allows visitors a very up-close and personal look at plant cloning and micropropagation. The primary purpose of the lab is to complement our native plant conservation program by developing techniques of growing rare plants that would otherwise be difficult or slow to propagate using conventional methods. Managed by Ron Gagliardo, the lab maintains constant activity and production through the help of a very qualified and dedicated volunteer force, ranging from high school interns to retired professionals. An International Internship program allows interested students from outside the US to train at the Fuqua Orchid Center.

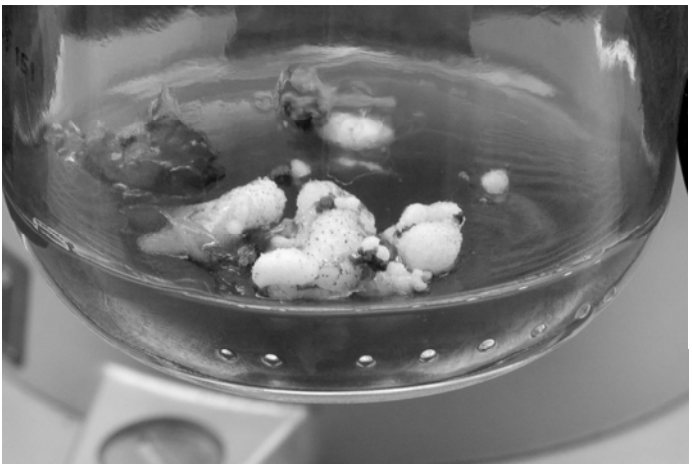
Laboratory projects include the propagation of native and tropical orchid spe-

cies, carnivorous plants, and other recalcitrant species such as *Trillium.* Techniques developed here can be passed on to the trade in order to lower the dependence on wild collecting in the future. Many plants produced through tissue culture appear to be more vigorous than their conventionally grown counterparts, thus offering growers additional advantages.

With regard to native orchids, the current focus is on terrestrial species native to Georgia. Working in conjunction with private landowners and government agencies, Garden staff has been able to obtain seeds of nearly 50% of the 57 species native to Georgia. Asymbiotic germination methods had been used exclusively until recently when we obtained fungal isolates from Larry Zettler for use in symbiotic germination experiments. Species with which we have had success in asymbiotically germinating seeds and growing plants to various stages include:

Calapogon tuberosus, *Calopogon multiflorus*, *Calopogon oklahomensis*, and *Calopogon pallidus*
Cleistes divaricata
Platanthera ciliaris and *Platanthera integrilabia*
Cypripedium acaule and *Cypripedium kentuckiense*
Tipularia discolor
Hexalectris spicata

Initial work with species native mainly to Georgia and the Southeast has involved mostly simple seed sowing, germination, and media comparisons. The basic question is whether or not we can grow these species asymbiotically to a stage that would be useful in subsequent field conservation and restoration work. At this point, we are establishing various species into greenhouse conditions and hope to get a better handle on their requirements for growth and future reproduction. It is not clear exactly what these requirements are for all species, and this simply reflects our challenges to better utilize all of these techniques (and learn new ones!) for the



Hexalectris spicata

benefit of practical recovery and restoration projects. It will be a long road but one we are certainly willing to travel.

Other taxa in the tissue culture lab include desirable tropical orchid species grown primarily from seeds produced from the Garden's orchid collection. Through these efforts, we are able to produce material for additional display, molecular research, and distribution. Mother flasks are frequently shared with other laboratories and institutions in an effort to promote conservation through propagation.

In the coming years we will add a more quantitative aspect to our work in the lab. This will allow us to publish findings that will be useful to others who are pursuing *in vitro* work with native orchids for conservation or commercial purposes. Imagine tissue culture liners of *Cleistes* or *Platanthera* being available for the trade! In addition we would like to use these techniques to further *in situ* recovery efforts here in Georgia. Our Native Plant Conservation Program has a proven track record in long-term restoration projects in the Southeast, and thus far has enjoyed very positive results. We will build upon this experience and explore our own ideas on laboratory and greenhouse techniques in order to enhance our success with terrestrial orchids.

Seedings of *Tipularia discolor*

Acknowledgments

The work in the tissue culture lab at the Atlanta Botanical Garden could not go on without the dedicated help of our very capable volunteer force. Specifically, I would like to thank Jim Braselton, Merrily LaBarthe, Christine Hettinger, Bruce Satterfield, and Michael Zaic who have dedicated thousands of hours to assisting on our many projects. In addition, on behalf of the garden and our conservation program, I would like to acknowledge the generosity of Agristarts, Inc. for their financial support, advice, plants, and friendship. Finally, I would like to express sincere thanks for the assistance of Mrs. Dorothy C. Fuqua for her generous support of our efforts at the garden and in the tissue culture lab which could not have developed to its current level without her help.

Wild Orchids of Eno River Valley

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The headwaters of the Eno River begin as small tributaries in the rural countryside of northwest Orange County, North Carolina. As the river meanders eastward over the gentle sloping hills of the Piedmont, it merges with the Little and Flat Rivers to become the Neuse which flows into the Falls Lake Reservoir.

In 1965 a group of concerned citizens organized a campaign to save the Eno River from a proposed reservoir building project. The resulting organization, called the Association for the Preservation of the Eno River Valley, proposed the establishment of a state park and in May of 1972 the state of North Carolina approved the idea. Through the efforts of the Eno River Association, the Nature Conservancy, and the state, the Eno River State Park became a reality.

The park is located northwest of the city of Durham and encompasses over 1000 acres of river valley, mixed hardwood forests, and floodplains. The Eno drops some 250 vertical feet in its forty-mile course and has carved out deep channels with steep forested bluffs. These habitats along the river are home to a rich diversity of plant life. More than 200 species of trees, shrubs, and herbaceous plants are known to exist including at least 19 orchid species. In this report I will focus on a few of the orchids that bloom in the spring.

I began to notice early in the season that the spring of 2005 would be different than many in past years. Usually the wildflower season arrives in mid-March with the blooming of *Sanguinaria canadensis* and *Erythronium americanum*. Not so this year because abnormally cool temperatures delayed many flowering plants including orchids.

My goal this spring was to locate and photograph *Cypripedium parviflorum* var. *parviflorum*. Although I had seen this species in the mountains of North Carolina in previous years, I had yet to see any in the Piedmont. The first place to investigate was Eno River State Park. After contacting the ranger's office to inquire about trail maps, I circled the date of May 1 to visit the park in search of orchids.

I arrived around 11 a.m. at the Pump Station section of the park. After parking along the gravel road south of the trailhead, I started out to see what I could find. The weather was perfect for hiking. Since I wasn't sure exactly where along the trail the orchids would be, I found myself stopping frequently and looking through the woods for anything that looked interesting. Luckily the

trail was well traveled so it wasn't difficult to stay on course. I knew the orchids would most likely occur along the wooded slopes vs. the more open areas along the river. Just inside the woods I spotted the leaves of *Goodyera pubescens*. Anthesis was about four or five weeks away, but this species is easy to identify from the evergreen rosette of striped and patterned leaves.

After hiking for about 5 minutes the trail turned to the right and continued parallel with the river. I continued on for another 10 minutes or so stopping along the way to check out what was in bloom along the riverbank. These moist embankments are prime habitat for *Galearis spectabilis.* This orchid has bicolored flowers which are borne on short stalks that arise from a pair of glossy, pale green leaves. The lip or labellum is white while the lateral petals, which form a helmet or hood over the opening to the nectary, vary from pink to purple, but occasionally are solid white.

As I continued down the trail the next botanical find was *Liparis liliifolia*. I was about one or two days early to see the flowers open on this small woodland orchid. Even though the plants were in the bud stage, I could still see the mauve labellum because as the flower opens, the labellum uncurls first exposing the rest of the floral parts inside.

Only a short distance from the spot where the *Liparis* were growing I noticed the topography was changing. About 20 ft off to the right of the trail were steep bluffs. I could not see anything from the trail so I followed a faint footpath that led to the bluffs. As I got closer I saw my first *C. parviflorum* in bloom. It was a stately plant with a bright yellow flower atop a pubescent stem with alternating oval leaves. The slightly twisted lateral petals spiraled downward along the sides of the inflated pouch forming a frame around the flower.

After I spotted the first one, suddenly more appeared in the shady woods like shiny rocks in a stream. Up and down the bluffs these fine orchids were in perfect bloom. Most grew as single plants, but I did find several clumps of two or more plants (Figure 1). I counted 28 plants in bloom with at least another dozen or so plants that were not in flower.

Each plant was a unique individual differing in the size, shape and coloration of the flowers. One of the striking characteristics I noticed was the variety of red spots, or lack of, around the top edge of the pouch opening (Figures 2 and 3, respectively).

I spent the next couple of hours photographing and admiring this collection of wild orchids. It was hard to leave that day. Each time I encounter this beautiful wildflower the excitement is equally as strong as what I felt the very first time I saw it. After this season's experience I will definitely return to see what additional treasures nature has to offer along the banks of the Eno River.

Acknowledgments

I thank the Eno River Association for providing the historical information about the park for use in this article.

Book Review: *The Gardener's Guide to Growing Hardy Perennial Orchids*

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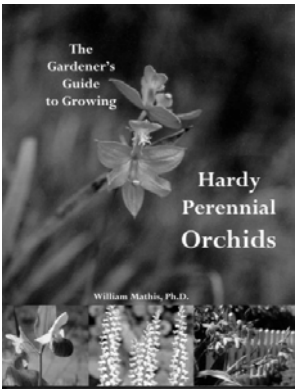
Ever wanted to know the secrets to growing temperate zone terrestrial orchids? William Mathis reveals those secrets in his new book *The Gardener's Guide to Growing Hardy Perennial Orchids* (published by the Wild Orchid Company, Doylestown, PA, 2005). This delightful book is profusely illustrated and is filled with color photographs of terrestrial orchids, many of them full page. Mathis covers the fundamentals of growing hardy orchids, from selecting plants to preparing the soil, watering, habitat, and pest control. He divides the orchids into three classes based on their habitat requirements: upland species; transition species; and wetland species.



Upland species are those that cannot survive constantly wet conditions. These include our native *Cypripedium* along with the Chinese *Cypripedium* and some *Calanthe*. The transition species are those that grow in wet soil in the wild, but can adapt to upland conditions in the garden. These include *Calopogon*, *Dactylorrhiza*, *Platanthera*, *Spiranthes*, and *Epipactis*. The wetland species require constantly wet conditions, and include *Pogonia ophioglossoides*. A chapter is devoted to each of these three classes and gives specifics of soil preparation and watering. In general Mathis recommends using rainwater or de-ionized water, specifically recommending that growers avoid high mineral content water. Although he talks mainly about growing in outdoor beds, he also covers pot culture for those who do not live

in the proper zones for growing orchids outdoors.

The book can be read cover to cover, which I did, or used as a reference guide for the species the grower is interested in. The concluding chapters cover seedling germination and seedling growth. This is important because Mathis emphasizes the importance of only buying plants that are known to have been grown from legitimately collected seed. *The Gardener's Guide to Growing Hardy Perennial Orchids* is an interesting, fact filled book, and essential to anyone desiring to grow temperate zone terrestrial orchids. *The Gardener's Guide to Growing Hardy Perennial Orchids* is available from the Wild Orchid Company for $24.95.

Rising Heat, Humidity, and Orchids

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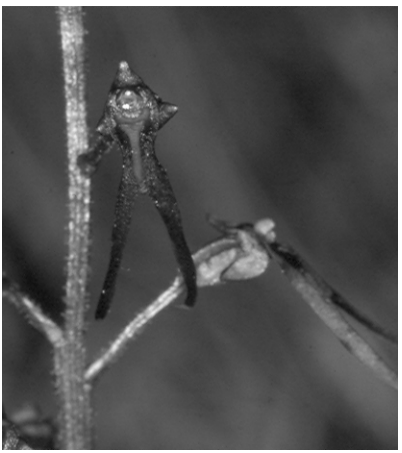
It was already warm; way too warm and humid for this early in the year on Sunday, 5 June 2005. Nonetheless, here Phil Schieve and I were at the Edinboro, Pennsylvania interchange, where I-79 meets Route 6, waiting for the arrival of another couple of intrepid orchid hunters. We were promised a late summer type day complete with convection thunderstorms later as the heat and humidity increased. Good thing we were at a local gas and convenience store chain, Scheetz, where we could stock up on cold things. About one half hour after we arrived, Clete Smith and Scott Shriver from Pittsburgh showed up in Scott's large rugged Suburban. Such a vehicle would be able to leap small rutted gullies and pot-holed roads in a single bound. That is something a Saturn owner like myself could not even contemplate, though I may have unintentionally done it on prior field trips.

With the gear of four stowed in various stages of disorder, we headed further eastward along Route 6 toward western Warren County. In the small town of Columbus, we added two more to the fray in the personage of retired dentist, Dr. Doug Jolley and his school-age nephew, Matt. We were and had been eastbound since Corry, Penn. on Route 957. Now we headed toward some lesser roads, if one still dignifies them as roads. We sought a rugged easement

right-of-way drive into state game land for a parcel called either Columbus Bog or Iron Springs Bog. These easement drives are not for the faint of heart and probably not advisable too soon after having eaten. Once parked and changed into clothes appropriate for devastation, we walked into the forest. Even the ground cover here was a treat for two Ohioans, as the understory was heavily endowed with northern boreal herbs. I particularly enjoyed the dark glossy trifoliate leaves of goldenseal (*Coptis groenlandica*) which was out of bloom while companion wild lily of the valley (*Maianthemum canadense*) was with. In addition, everywhere we went this day we enjoyed a wide medley of lycopods and true ferns ranging from calf to knee height.

Upon entering the bog mat of rich green sphagnum mosses, I was immediately conscious of several things. First I had an obvious sinking feeling. Secondly, I noticed the beautiful clusters of unfurling ferns; most impressive of which were the various *Osmunda* spp. Conspicuous were the vase-like clusters of emerging cinnamons (*Osmunda cinnamomea*) contrasting delicate lime greens with the most beautiful soft tawny browns. Lesser in quantity but not quality were the vases of interrupted fern, (*Osmunda claytoniana*). In least quantity, but eventual girth winner would be the royal ferns (*Osmunda regalis*) currently featuring a darker green alternating with dark maroon on everything from leaflets to petioles to stems. Reds and maroons on immature vegetation are frequently explained as nature's sunscreen. Such coloration signifies protection for the tender youngest of the vegetation from burning and desiccation.

From the sphagnum emerged dark glossy green ovate leaves of the wild calla (*Calla palustris*). Quite a few had that unmistakable arum type flower with white spathe and spadix. Naturally I was photographing as much as I could find. There were a few of the boreal star flowers (*Trientalis borealis*) still holding their white flowers, but I was after other if not smaller game. It was not long after entry that someone spotted the first of the southern twayblade orchid (*Listera australis*). Here along the northern tier of its range it still put on quite a show despite its short stature. Dark maroon stem and flowers upon a thin raceme were contrasted only by some yellow of the reproductive parts as well as part way up the stem opposite, green, ovate leaves. Some serious photography began to take place as each group member hunted out a favorite for pictures.



Listera australis
Photo: Ron Coleman

A word should be said about photography in a bog. Either you can resign yourself to the inevitable, and just take a belly flop to get immediately soaked, or you can try to figure out some way to lie down on a tarp or kneel. No matter what you try, Mother Nature will frustrate your effort. Stretched out on a plastic tarp, I quickly gained the feeling a sea captain must have going down with his ship. The high humidity also didn't work for those seeking to remain dry. Fortunately, mosquitoes and black flies were apparently on strike or didn't know the time of year; however some pesky flies did.

Shrubs had some handsome residents such as various blueberries (*Vaccinium* spp.) and huckleberries (*Gaylussacia* spp.). The bell or urn shaped flowers dropped as we stumbled through. A few of the three-leafed sedge (*Dulichium arundinaceum*) showed off their three rows of strap-shaped leaves. There were also some round leaved sundew (*Drosera rotundifolia*) holding their glistening tentacles aloft.

Before long, everyone else was gone and out of the bog except me. No problem, I foolishly thought. I would find my way out in my usual infallible fashion. Let me see now, where did I park my car? It took the missing person's "helloooo" to locate the rest of the gang, but I made it out after 20 minutes or so of wandering in circles. Everyone had a good laugh at my expense.

It was time to head back westward to Dutchman's Road. We were still in western Warren County just slightly east of French Creek. This hemlock swamp forest was to prove to be home to some special residents. Upon entry the first interesting find was a couple of still prime-blooming pink lady slipper orchids (*Cypripedium acaule*). The few in bloom mesmerized us with their pink pouches and darker

Cypripedium acuale
Photo: David McAdoo

swirls of veination contrasting dramatically with the dark chocolate colors of the other five flower parts. However, the real prize belonged to the early coral root orchids (*Corallhoriza trifida*; page 20). Some were single; others were clustered and most were in excellent photographic condition. They may be tiny, but those delicate light green stems holding racemes of tiny whitish flowers are a prize for us aficionados. Of course, getting to them was problematic. Much downed timber made this occasion 'a trip' in every sense of the word. It seemed like every sphagnum mound was decorated by these tiny treasures as if some elfin community had done a mass planting. All the timber obstacles may well serve to protect them.

Now it was time for the big wade in to Titus Bog. Given the weather, getting soaked crossing the moat guarding this special place was a good option. Not so good was the tangle of tripod-eating shrubs that whack and catch on everything and everybody. Once safely out onto the bog mat, the quaking surface held a rich carpet of sundews and cranberries. It was prudent to gingerly test your steps before committing or you could find yourself sinking knee deep or worse. Nevertheless, we boldly went where few venture to go. Our search was rewarded by a perfect timing for the bloom of the dragon's mouth orchids (*Arethusa bulbosa*; page 20). These handsome plants are no more than a few to perhaps 6-8 inches maximum off the sphagnum surface; yet they show off the most vibrant shades of deep pink with that lowermost petal called the lip having an exquisite runway for insects in yellow and white. It was a visual feast for insects and photographers alike. Time spun out of control as film and digital flash cards were filled. All too soon it was time to retrace our steps out; satiated with the wondrous sights we had seen this day.

Sadly, it must also be reported that this bog and many other special wetlands in the area suffer from lack of stewardship. Neither the state of Ohio nor the neighbor, Pennsylvania, has money for such things. None of these bogs and fens is doing well. Invasive species, succession and water drainage problems such as what is occurring here due to siphoning off of the water table by adjacent potato and corn farmers does not bode well for the future. At least for the near future, we can count on going into these treasures to see, photograph, and simply enjoy the botanical treasures created for those willing to venture in.

END NOTES

5th Annual
Native Orchid Conference Meeting
June 9 –12, 2006

Southern Oregon University
Ashland, Oregon, USA

Ashland, Oregon is situated in the convergence of three mountain ranges. This unusual geological convergence gives rise to a unique and diverse flora which supports twenty-five native orchid species, fourteen of which typically bloom in June.

Programs will be held in the Science Building on the SOU campus. Conference presentations will include both regional and out-of-area speakers. Members with presentation proposal inquiries are invited to contact Dr. Carol Ferguson at SOU: *ferguson@sou.edu*.

Field trips will be half-day and full day excursions led by area botanists. Trips are planned to Crater Lake, Illinois Valley, and the Russian River using transportation provided by university vans.

Details of conference registration and schedules are expected to be available on the Native Orchid Conference website by January 2006 at http://groups.yahoo.com/group/nativeorchidconference/.

Logo Design Winner

Kathy Barton
Manville, Rhode Island

A logo to represent the Native Orchid Conference, Inc. has been selected! Among the many entries we received, the members voted and chose the design shown below. We congratulate Kathy Barton and extend sincere thanks to all contestants who submitted their designs.

Erratum

The photograph on the back cover of the last issue of the Native Orchid Conference Journal [Volume 2(2)] was mislabeled. The featured species is *Trichocentrum undulatum* (incorrectly noted as *Cyrtopodium punctatum*). We regret printing inaccurate information.

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Policies for obtaining back issues of the NOC Journal

⇒ New subscribers shall receive all issues published within the year they join Native Orchid Conference.

⇒ Contributing authors can request up to 2 free copies of the Journal at the time their article is accepted. Copies requested at a later date or requests for additional copies will be charged at $5.00 each.

⇒ Back-issues are available in limited quantities. Each issue may be purchased for $5.00 while supplies last.

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