# The Native Orchid Conference
# **Journal**

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Orchidtalk—

An editor's life tends to be one of anticipation, trepidation, and gratification. As one issue is mailed, the anticipation of problems, frustrations, and (hopefully) successes begins with work on the new one. There's that feeling of security that comes from having a few manuscripts in one's "hip pocket;" in readiness for that next issue, but there's always the nagging fear no new authors will surface; no new manuscripts will arrive; and that the next issue will be shallow and colorless when readers compare it to the previous one. Further, given a little time after the first one has been mailed, there are the belated discoveries of typos that should have been caught, but were not, reports of photos credited incorrectly, and the realizations that this or that figure might have been included, or of wording that should have been better crafted. It matters not how the original manuscript arrived in the editorial hands! If it's well written, the author is credited. If there are errors, they are to the editor's discomfiture. Hence the trepidation aspect. Joe Blyftsk, a poor character in the now-ancient Li'l Abner comic strip forever walked with a black cloud over his head and disasters in his wake. At such editorial times, Little Joe's words seem to echo something of a dismal editorial motto:

"Here in the main are all my troubles. These in the main are my regrets.
When I'm right no one remembers. When I'm wrong, no one forgets!"

Then, when the clouds seem darkest,...when one's wife begins to have reservations about her spouse's mental stability,...and even the dog seeks other company,... Lo! The snail- and emails bring forth new creations and figures, and whole new avenues of creativity open. Yes, there's the frustration of converting manuscripts sent in Word Perfect instead of Microsoft Word, figures in pdf rather than jpeg, and misspelled, or obsolete botanical identifications, but at least the ore is now available to be refined, and the delight begins in earnest! One pieces together a new issue for readers not glued to shows and social events, or commercially bent on "improving on" the work of eons of natural selection, but who delight in searching out the obscure and exquisite in the natural world, and enjoying while conserving it!

Sour notes of typos are corrected. Figures are placed, reviewed, and compared yet again. At last, what evolves is hopefully the scherzo of a travelogue, the fanfare and smiles of a discovery, a prelude of the literature, and a full-blown symphony of scientific writing. What's to add? What's to leave out? In this world of studies of natural orchids, each has its place and contributes its own unique melody! With all this, then, comes the gratification of having been allowed to be a part of the orchestration of its presentation!

Ah, but will the *next* issue see a dearth of material? Will undiscovered typos surface to haunt with ghosts of issues-past? Alas, one never knows as the editorial cycle begins again. However, consider: each issue's quality rests not only with the editor, but-in the main-with its *contributors*. Knowledge not shared is only a secret; a song unsung; that movement of a symphony unwritten! The joys of trips, discoveries, and events shared with colleagues,...all are meant to be shared with photographs, dates, and words,... with everybody! rjfSr.

# A SURVEY OF STATE AND PROVINCE ORCHID FLORAS.

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A natural question often asked by those with a beginning interest in native orchids is "How do I find out which orchids grow in my state?" The Internet has made answering that question a bit easier than formerly as web sites abound with lists of orchids by state or province. Two other sources are still worth consulting. General state floras are a valuable resource. Though they tend to have dated nomenclature as most are many years old, they do contain descriptions of the orchids that grow in that state. The other source to consider is a state or province orchid flora. A very broad definition of an orchid flora is used in this article: it must be a publication that describes the orchid species known at time of publication to occur in that state or province. The best ones are based on field, literature and herbarium research. They contain keys, distribution data, flowering times, drawings, photographs, and references. Many contain synonyms, which help clarify the dated nomenclature.

Table 1 (page 5) lists orchid floras known to the author by state. Table 4 (page 6) lists orchid floras by province. The floras are generally either books, pamphlets or journal articles. Some evolved from articles to pamphlets or books. Homoya (1993) is a good example of a recent book; Burian (2000) an example of a pamphlet; and Fitzpatrick (1899) an example of a journal article. Wallace, (1951) is an example of a journal article eventually published in booklet form by Cameron (1976). One entry, Brown (1993), covers 7 states by describing the collective taxa with a state by state listing of orchid species.

Table 2 (page 5) and table 3 (page 6) show respectively that 18 states and 9 provinces do not have published orchid floras. A quick study of Table 1 shows that some of the orchid floras are quite old. The orchid flora of Iowa dates from 1899, that of Ohio from 1909, and that of Wisconsin from 1933. Most of the orchid floras have nomenclature that needs updating and new descriptions and new taxa which have resulted from subsequent field work should be included. Clearly much work remains to be done even within the much-studied orchid flora of the United States and Canada.

Orchid floras covering only a portion of a state or province, such as Fisher (1980), or covering multiple states, but without specific listings by state, such as Gupton & Swope (1986), were not listed in the tables.

The author is interested in knowing if any existing state or province orchid floras have been overlooked in this survey.

Table 1. Existing Orchid Flora Publications, by State.

AZ Coleman, R. A. 2002. The Wild Orchids of Arizona and New Mexico.
AR Slaughter, C. M. 1993. Wild Orchids of Arkansas.
CA Coleman, R. A. 1995. The Wild Orchids of California.
CO Long, J. C. 1970. Native Orchids of Colorado.
CT Brown, P. M. 1993. A Field and Study Guide to the Orchids of New England and New York.
FL Luer, C. A. 1972. The Native Orchids of Florida.
Brown, P. M. 2002. Wild Orchids of Florida.
HI MacCaughey, V. 1916. The Orchids of Hawaii. The Plant World, vol. 19(11): 350-355.
IL Winterringer, G. S. 1967. Wild Orchids of Illinois.
IN Cunningham, A. M. 1896. Distribution of the Orchidaceae in Indiana. Proceedings Indiana Academy of Science. 198-202.
Homoya, M. A. 1993. Orchids of Indiana. Indiana Academy of Science.
IA Fitzpatrick, T. J., and M. F. Fitzpatrick. 1899. The Orchidaceae of Iowa. Report of the Iowa Academy of Science.
IN Homoya, M. A. 1993. Orchids of Indiana. Indiana Academy of Science.
Cunningham, A. M. 1896. Distribution of the Orchidaceae in Indiana. Proceedings Indiana Academy of Science. 198-202.
KA Magratth, L. K. 1972. Native Orchids of Kansas. Transactions Kansas Academy of Science
KY Ettman, J., and D. R. McAdoo. 1978. An Annotated Catalogue and Distribution Account of the Kentucky Orchidaceae. (self published pamphlet)
LA Solymoosy, S. L. 1963. Orchids of Louisiana. Bulletin Louisiana Hort Research.
ME Wallace, M. E. 1951The Orchids of Maine.
Cameron, J. W. 1976. The Orchids of Maine.
Keenan, P. E.1983A Complete Guide to Maine's Orchids.
Brown, P. M. 1993. A Field and Study Guide to the Orchids of New England and New York.
MA Brown, P. M. 1993. A Field and Study Guide to the Orchids of New England and New York.
MI Bingham, M. T.1939. Orchids of Michigan.
Darlington, H. T. 1919. Distribution of the Orchidaceae in Michigan. 21st Michigan Academy of Science Report.
MN Smith, Welby R. 1993. Orchids of Minnesota.
MO Summers, B.1981; 1987. Missouri Orchids.
NH Cutter, V. 1940. New Hampshire Orchids.
Brackley, F. 1985. The Orchids of New Hampshire (special issue of Rhodora).
Brown, P. M. 1993. A Field and Study Guide to the Orchids of New England and New York.
NM Coleman, R. A. 2002. The Wild Orchids of Arizona and New Mexico.
NY Brown, P. M. 1993. A Field and Study Guide to the Orchids of New England and New York.
NC Correll, Donovan S. 1937. The Orchids of North Carolina. Journal of the Elisha Mitchell Scientific Society vol. 53, No. 139-173.
OH Blair, Kate R. 1909. The Orchids of Ohio. The Ohio Naturalist vol. X, No. 2: 24-35.
OK Magrath, L. K. 2001. Native Orchids of Oklahoma. Journal of the Oklahoma Native Plant Society 1 (1): 39-66.
OR Burian, R. 2000. Native Orchids of Oregon.
PA Henry, L. K. 1975. Western Pennsylvania Orchids.
RI Brown, P. M. 1993. A Field and Study Guide to the Orchids of New England and New York.
SC Dueck, L. 2003. Wild Orchids in South Carolina. Savannah River Laboratory.
TX Liggio, Joe., and Ann Orto Liggio. 1999. Wild Orchids of Texas.
VT Brown, P. M. 1993. A Field and Study Guide to the Orchids of New England and New York.
WI Fuller, A. 1933. Orchids of Wisconsin

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Table 2. States For Which No Orchid Flora is Published.

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|---|---|---|---|---|---|
| Alabama | Georgia | Mississippi | Nevada | South Dakota | Washington |
| Alaska | Idaho | Montana | New Jersey | Utah | West Virginia |
| Delaware | Maryland | Nebraska | North Dakota | Virginia | Wyoming |

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Table 3. Provinces For Which No Orchid Flora Is Published.

| | | |
|---|---|---|
| New Brunswick | Northwest Territories | Quebec |
| Newfoundland & Labrador | Nunavut | Saskatchewan |
| Manitoba* | Prince Edward Island | Yukon |

* A published orchid flora for Manitoba has not been found, but there is one on the following website:
www.manitobaorchidsociety.ca/native/ManitobaNativeOrchids/index.html#alpha

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Table 4. Provinces With Existing Orchid Flora Publications.

| | |
|---|---|
| Alberta | Smreciu, E. A. and R. S. Currah. 1989. A Guide to the Native Orchids of Alberta. University of Alberta Devonian Botanical Garden, Edmondton Alberta. |
| British Columbia | Szczawinski, A. F. 1975. The Orchids of British Columbia. British Columbia Provincial Museum, Victoria. |
| Nova Scotia | Donly, J. F. 1963. The Orchids of Nova Scotia. Self Published.<br>Munden, Carl. 2001. Native Orchids of Nova Scotia. University College of Cape Breton Press. |
| Ontario | Whiting, R. E. & P. M. Catling. 1986. Orchids of Ontario. Canacoll Foundation. |

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Additional References:

Case, F. W., Jr. 1987. Orchids of the Western Great Lakes Region. Saginaw, Michigan: Cranbrook Institute of Science. 251pp.

Fisher, R. M. 1980. The Orchids of the Cypress Hills. Self Published.

Gupton, O. W. & F. C Swope. 1986. Wild Orchids of the Middle Atlantic States. University of Tennessee.

Keenan, P.E. 1998. Wild Orchids Across North America. Portland, Oregon: Timber Press, Inc. 321pp.

Luer, C. A. 1975. The Native Orchids of the United States and Canada excluding Florida. New York: The New York Botanical Garden. 373pp.

Morris, F., and Edward A. Eames. 1929. Our Wild Orchids-Trails and Portraits. New York: Charles Scribner's Sons. 464pp.

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Corrections to vol. 1(1)

In vol. 1(1), photo credit for Fig. 1 on page 10 and Fig. 2 on page 11 should have been given to Gina Glenn of the US Fish and Wildlife Agency.

In vol. 1(1), on p. 24 the president's email address was given incorrectly. His correct email address is ncorchid@yahoo.com

# A Synopsis of the Genus *Hexalectris* in the United States and a New Variety of *Hexalectris revoluta*[1]

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**Abstract:**

Information on typification, synonymy, habitat, distribution, phenology, classification and identification is provided for 7 taxa of *Hexalectris* occurring in the United States. The taxa included are ***Hexalectris grandiflora***, ***H. nitida, H. revoluta*** var. ***colemanii, H. revoluta*** var. ***revoluta, H. spicata*** var. ***spicata***, ***H. spicata*** var. ***arizonica***, and ***H. warnockii***. Illustrations of type material and distribution maps are included. A new variety**,** ***H. revoluta*** var. ***colemanii***, is described from Arizona and a new form, ***H. warnockii*** f. ***flavida*** is described from Texas.

The genus *Hexalectris* (Orchidaceae) includes 7 species that occur in North America and Central America (Correll 1950; Luer 1975). Recent studies have resulted in the discovery of two new taxa, one previously described (Catling and Engel 1993) and the other described here. In addition much information on distribution and variation has been acquired. As well as introducing a new taxon, the work presented here represents an update to the taxonomic treatment in Flora of North America (Goldman et al. 2002) and includes additional information on distribution, typification, and illustrations of type material that could not be included in the condensed FNA format.

Species in this genus *Hexalectris* serve as valuable bioindicators of habitats deserving of consideration for protection. Each of the 7 taxa in the region under study are either locally or universally rare and of concern with respect to the protection of biodiversity. This study provides a basis for conservation by documenting distribution and providing new information on classification and identification.

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[1]C. J. Sheviak and R. A. Coleman provided useful comments on the manuscript. Locations and extensive historical data on populations in Texas were provided by J. Poole, botanist with Texas Wildlife Diversity Program. Other information on occurrences in Texas was provided by W. R. Carr, botanist with the Texas Conservation Data Centre. Information on populations in Arizona was provided by G. Ritter of the Heritage Data Management System of the Arizona Game and Fish Department.

METHODS-Material of *Hexalectris* in the following herbaria was examined: AMES, ARIZ, BAYLU, DAO, F, MICH, NY, PH, P, SEL, SMU, SR, TEX, and US (acronyms from Holmgren et al. 1990). Type specimens were located and examined to provide a basis for the correct application of names. Records from other herbaria were noted. In addition photographs and drawings were made available by a number of correspondents. All this material provided a basis for circumscription of taxa and a better understanding of distribution and status. All drawings were made with the aid of a camera lucida. Some locations plotted on the distribution maps may be up to 20 miles away from an actual collection site as a result of insufficient data to plot locations precisely.

## KEY TO THE SPECIES AND VARIETIES OF *HEXALECTRIS* IN THE UNITED STATES

1a. Lip (7)9-11 mm long; column (6)7-8 mm long; lateral veins not keeled; stigma vestigial ***Hexalectris nitida***

1b. Lip 10-20 mm long; column 9-15(18) mm long; lateral veins prominently keeled at some point; stigma present or vestigial 2

2a. Midvein of the lip not keeled; flowers pale or deep pink to crimson, perianth spreading ***Hexalectris grandiflora***

2b. Midvein of the lip keeled; flowers purple, maroon, brown, or pinkish- brown; perianth spreading or revolute 3

3a. Keels pronounced, irregularly scalloped and broken toward the apex of the midlobe; petals purple or maroon, linear- or lanceolate-falcate, not revolute ***Hexalectris warnockii***

3b. Keels pronounced near the base of midlobe, never prominent, scalloped and broken toward its apex; petals pinkish-brown, yellowish-brown or brown, with or without purple stripes, elliptic-falcate, strongly revolute to not revolute 4

4a. Lateral lobes of the lip extending to or beyond the middle of the midlobe; central lobe of lip acute or truncate 5

5a. Central lobe of the lip acute at the tip; petals 19-22 mm long, strongly revolute; column 14-15 mm long ***Hexalectris revoluta*** var. ***colemanii***

5b. Central lobe of the lip more or less truncate at the tip; petals 15-17 mm long, revolute; column 9-13 mm long ***Hexalectris revoluta*** var. ***revoluta***

4b. Lateral lobes of the lip barely extending beyond the base of midlobe; central lobe of lip rounded or truncate 6

6a. The 5 central veins of the lip with their highest keels raised (0.4) 0.7-1 mm above the lip surface; column with a rostellar flap separating the pollen masses from the stigmatic surface; flowers opening and petals and sepals revolute ***Hexalectris spicata*** var. ***spicata***

6b. The 5 central veins of the lip with their highest keels raised 0.4-0.7 mm above the lip surface; column without a rostellar flap separating the pollen masses from the stigmatic surface; flowers often remaining closed or petals and sepals spreading but not revolute. ***Hexalectris spicata*** var. ***arizonica***

## SYNOPSIS

**GREENMAN'S CORAL-ROOT,** GIANT CORAL-ROOT Fig. 1

***Hexalectris grandiflora*** (A. Richard & Galeotti) L. O. Williams in Johnston, J. Arnold Arb. 25: 81. 1944 .

*Corallorhiza grandiflora* A. Richard & Galeotti, Ann. Sci. Nat., ser. 3, 3: 19. 1945. TYPE: MEXICO: Oaxaca: inter Chila et Huauapan, 1834, *M. Andrieux* (Lectotype designated here, P!).

*Hexalectris mexicana* Greenman, Proc. Am. Acad. 39: 77. 1903. TYPE: MEXICO: Oaxaca, Cerro de Huachilla, elev. 2500 m, 20 Junio 1901, *C. Canzatti and V. González 1255* (Lectotype designated here, AMES!).

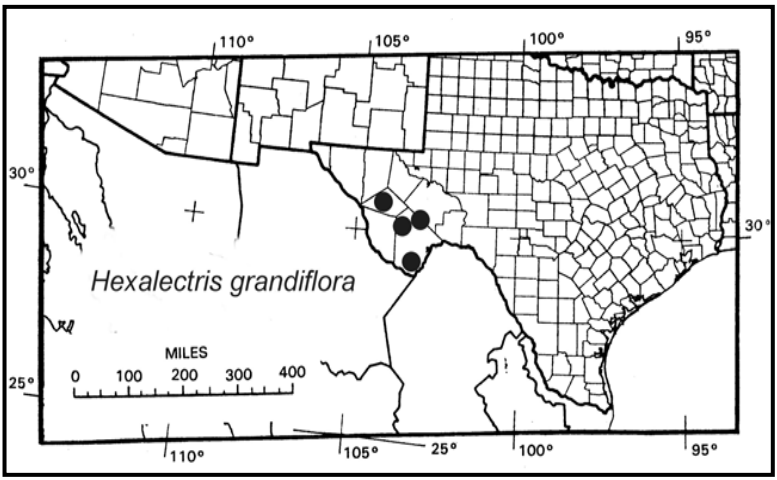


Fig. 1. Distribution of *Hexalectris grandiflora* based on herbarium specimens examined.

HABITAT, DISTRIBUTION, PHENOLOGY: Found in shady places beneath pines and oaks. Luer (1976) illustrated plants in the gravel wash in the floor of a canyon that were periodically under water. In the Davis Mountains it occurs in oak-juniper-pinyon pine woodlands in shade of oaks and *Arbutus xalapensis* (Liggio and Liggio 1999). Several specimen labels refer to igneous soil. In the United States it is apparently confined to the Trans-Pecos region of Texas (Fig. 1), and is most frequent in the Davis Mountains and Glass Mountains. Only one collection was seen from the Chisos Mountains. It is widespread in México having been collected in the states of Coahuila, Chihuahua, Guerrero, Michoacán, Nuevo León, Oaxaca, Puebla, San Luis Potosí, Sonora, and Tamaulipas. Peak flowering occurs from mid-July to August but flowering plants have been found in late June and mid-September.

CLASSIFICATION AND IDENTIFICATION: Richard and Galeotti did not cite a specimen or indicate a location in the protologue. The specimen chosen

as a lectotype of *Corallorhiza grandiflora* includes two scapes, one with a portion of a rhizome, as well as flowers in packets. The sheet bears a "Herb. Mus. Paris" label upon which is written *"Corallorhiza grandiflora* AR" with "M. Andrieux 1834" printed at the bottom. At the lower left corner there is also a label with "Cymbidium 86, inter Chila et Huauapan, Oaxaca." Another small label bears the word "type" and annotations by M. Soto in 1990 and P.M. Catling in 1992 suggest that it is the type of *C. grandiflora*. Duplicates of this collection are at G and W and associated drawings are at AMO, P and W (G. Salazar, in litt.). Although it has often been assumed that the specimens used by Richard and Galeotti are at P, the main set may be at W as a result of an unreturned loan from P to H.G. Reichenbach (Christenson 1999). The specimen at W (15159) has only flowers and the lack of a description of the scape by A. Richard suggests it was this specimen that he used to describe *C. grandiflora*. However this can only be surmised, and the much more complete specimen at P appears to be a better choice of lectotype. The specimen at G with two scapes was meticulously examined by G. Salazar who prepared a detailed description of it (AMO) and a drawing of a softened flower (G. Salazar, pers. comm.). The drawing corresponds closely to a drawing of a flower from the specimen at P (Fig.2, upper row). Salazar noted that the specimen at G represented the same species as the specimen at W. Thus, all are referable to *H. grandiflora*. With its long clawed lip, broadly rounded distally, the softened flower of the lectotype clearly represents the plant widely treated as *H. grandiflora* (Fig. 2).

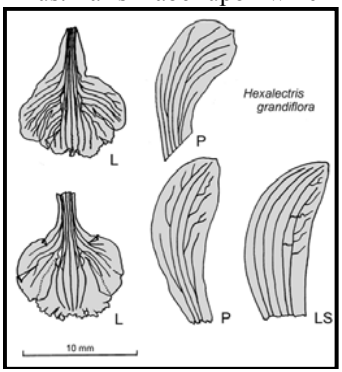


Fig. 2. *Hexalectris grandiflora*. L, lip; P. petal; LS, lateral sepal; DS, dorsal sepal. Upper row from lectotype of *Corallorhiza grandiflora* M. Andrieux , col. Between Chila & Huauapan, Oaxaca, México (P); Lower. Row: lectotype of *H. mexicana Canzatti & Gonzales 1255*, col. on Cerro de Huachilla, Oaxaca, México (Ames).

The specimen chosen as lectotype of *H. mexicana* was designated as type by L. O. Williams (in litt.) and it has more plants and flowers than other syntypes (Fig. 2, lower row).

REPRESENTATIVE SPECIMENS EXAMINED: **TEXAS. Brewster Co.:** rare in lower willow creek basin of Chisos Mts., 16 July 1937, *B.H. Warnock s.n.* (ARIZ); rare beneath pines in upper Pine Canyon, Chisos Mountains, alt. 5200 ft., 1 August 1950, *B.H. Warnock 9190* (SR); infrequent, Iron Mountain, Glass Mountains, alt. 4000 ft, 30 June 1959, *G. McKenzie 406* (SR); **Jeff Davis Co.:** canyon, Mt. Livermore, Davis Mts., 21 August 1914, *M.S. Young 192* (AMES); Fern Canyon, Alpine, July 1925, *W.W. Wimberley s.n.* (CU); Alpine, 26 July 1926 (SR); wooded slopes near Madera Springs, Davis Mts., alt. 4500 ft, August 1934, *T.L. Steiger 34* (NY); Madera Canyon, Mt. Livermore, 6 August 1935, *L.C. Hinckley 440* (AMES); sparse in Madera Canyon above observatory, Davis Mountains, alt. 5200 ft., 19 August 1935,

*H.T. Fletcher 492* (SR); frequent, Goat Canyon at foot of Mt. Livermore, Davis Mts., alt. 1950 m, 21 August 1935, *L.C. Hinckley 440* (NY); infrequent after summer rains, Mt. Livermore, Davis Mts., alt. 2100 m, August 1935, *L.C. Hinckley s.n.* (AMES); Livermore, July 1936, *L.C. Hinckley s.n.* (TEX); Madera Canyon, near Mt. Livermore, 27 August 1939, *L.C. Hinckley s.n.* (TEX); H O Canyon near Livermore, 29 July 1937, *L.C. Hinckley s.n.* (ARIZ); under Emory oaks about 1 mi NE Boys Camp, 26 July 1944, *L.C. Hinckley 3180* (NY); sparse on SW slopes of Mt. Livermore, lower springs in Madera Canyon, 13 September 1947, *B.H. Warnock 7506 and F.M. Churchill s.n.* (SR); rare on Flat Top near Tricky Gap, Buffalo Trail Scout Ranch Davis Mts., alt. 6500 ft., 8 August 1948, *B.H. Warnock 8055 and B.L. Turner* (SR); rare in Fern Canyon, 11 mi N of Alpine, Davis Mts., alt. 4600 ft., 30 June 1949, *B.L. Turner s.n.* (SR, SMU, TEX); rare at Mitre Peak Girl Scout Camp, Fern Canyon east grotto area, fall 1964, *E.K. Bouchhorn s.n.* (SR); rare in upper Madera Canyon beneath oaks, Davis Mts., elev. 5800 ft, 10 August 1968, *B.H. Warnock 23303* (SR); Davis Mts. Resort, near resort headquarters along arroyo that drains Colleen Canyon, Davis Mts., elev. 5700 ft, 11 July 1981, *R.D. Worthington 7240* (ARIZ); upper Limpia Canyon above Davis Mts. Resort along and near the drainage, Davis Mts., 7 September 1985, *A.M. Powell and S. Powell 5169* (SR); oak juniper woodland, near small ravine, Davis Mts. Resort, elev. 5500-6500 ft., 6 August 1988, *A.L. Hempel 6* (SR)

Fig. 3. *Hexalectris grandiflora*. Davis Mts, TX photo: R. Coleman

**SHINING CORAL-ROOT,** GLASS MOUNTAIN CORAL-ROOT-Fig. 4

***Hexalectris nitida*** L. 0. Williams *in* Johnston, J. Arnold Arb. 25: 81. 1944. TYPE: MEXICO. Coahuila: Sierra Mojada, Cañon de Hidalgo, above San Salvador Mine, near Esmeralda, shaded canyon below crest at top of canyon, erect, among rocks, not common, 4 Aug. 1931, *R.M. Stewart 1068* (Holotype: AMES!)

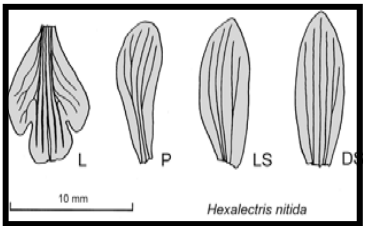


Fig. 4. *Hexalectris nitida*. L, lip; P, petal, LS, lateral sepal; DS, dorsal sepal. Camera lucida drawings of softened flower from the holotype, *Stewart 1068*, col. in western Coahuila, Mexico (AMES).

HABITAT, DISTRIBUTION, PHENOLOGY: Engel (1987) reported that in the Dallas area the plants grow most often in a bed of decaying juniper needles over level limestone rock in Juniper-Oak forest and the same habitat is reported for Taylor County, Texas. The New Mexico site is in a canyon under *Quercus muhlenbergii* near springs. *Hexalectris*

Fig. 5. *H. nitida* Photo: R. Coleman. Guadeloupe Mts. Natl Park, Texas

*nitida* and *H. revoluta* var. *revoluta* are sometimes found together in moist canyons in oak-juniper-pinyon pine woodland and in shady places under *Agave lechuguilla* and *Quercus mohriana* (Warnock 1977, Liggio and Liggio 1999).

Some years in the Dallas area there are hundreds of flowering plants whereas in other years there are none. Through surveying the Dallas populations on a regular basis and comparing the results with weather data, Engel (1987) concluded that "generous rainfall in the late spring is necessary for flowering of *H. nitida*."

Until Engel's (1987) discovery in the Dallas area *H. nitida* was known only from the Big Bend region of Texas (Luer 1975). Currently it is known from localities throughout much of Texas and in southeastern New Mexico (Fig. 5). Records on file with the Texas Wildlife Diversity program (J.Poole, pers. comm.) for which justifying material has not

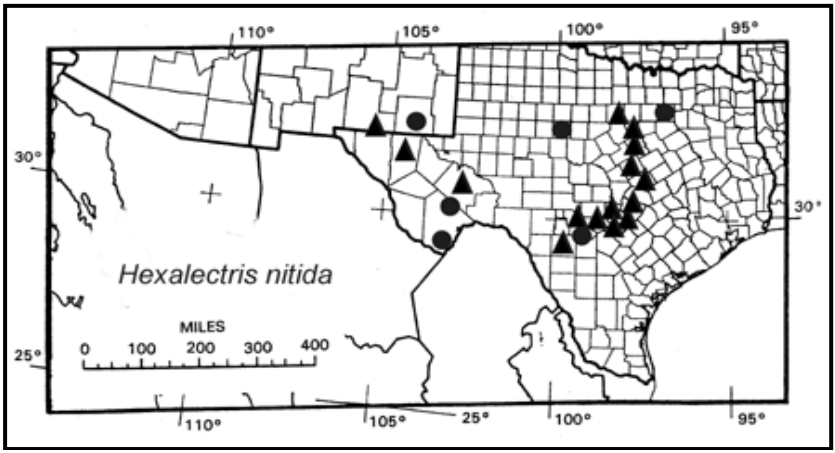


Fig. 6. Distribution of *Hexalectris nitida* based on herbarium specimens examined (dots) and either published or databased reports (solid triangles).

been seen are indicated with a solid triangle on the accompanying map. Mapped occurrences in Bell, Blanco, Bosque, Kerr and Somerville counties are based on published reports by Liggio and Liggio (1999). The New Mexico record from Otero Co. is based on information in the rare plant database at the University of New Mexico. In México it occurs in the states of Coahuila, and Nuevo Leon and possibly Oaxaca. Peak flowering from late June to early August. It blooms a little later than *H. revoluta* var. *revoluta* (Liggio and Liggio 1999).

CLASSIFICATION AND IDENTIFICATION: A flower from the holotype lacks a rostellum so that the pollinia and stigmatic surface develop in contact. Auto-pollination in *Hexalectris* has been previously reported in *H. nitida* from México (Catling 1990) and in *H. spicata* var. *arizonica* (Catling & Engel 1993). *Hexalectris nitida* is morphologically similar to the larger flowered *H. parviflora,* known from the Mexican states of Guerrero, Jalisco, and Sonora, and from the Sierra de Las Minas in Guatemala. It may have developed from the latter species through a selection for auto-pollination, this leading to smaller flowers with less prominent terminal lip lobes and relatively poorly developed keels on the lip as illustrated in the holotype (Fig. 4). The relationship between *H. nitida* and *H. parviflora* is unclear, partly because of insufficient material to allow an analysis of variation. The two species may be separated as follows:

1a. Lip mostly 8-10 mm long; terminal lobe of the lip not very prominent, extending 0.22-0.25 the length of the lip beyond the tips of the lateral lobes; petals spatulate-falcate, widest in the distal 1/3 *H. nitida*

1b. Lip mostly 12-14 mm long; terminal lobe of the lip very prominent, extending 0.40-0.45 the length of the lip beyond the tips of the lateral lobes; petals lanceolate-falcate, widest near the middle *H. parviflora*

A plant from Baja California (La Laguna, Sierra Laguna, 24 March 1939, ARIZ) has a rostellum and the pollinia and stigmatic surface are separated and the petals are lanceolate as in *H. parviflora*, but the lip is 10 mm long and the midlobe is of intermediate prominence. This plant seems closest to *H. parviflora*, but may prove to be a new taxon.

REPRESENTATIVE SPECIMENS EXAMINED: **NEW MEXICO. Eddy Co.:** narrow canyon near several small springs near Carlsbad, elev. 4100, 30 June 1977, *H. L. Parent s.n.* (ARIZ). **TEXAS. Bandera Co.:** NNE exposure in dense Juniper woodland, Lost Maples State Natural Area, 28 July 1975, *W.G. Britt s.n.* (TEX). **Brewster Co.:** Panther Hill, Glass Mts., 2 August 1940, *B.H. Warnock W91* (TEX); sparse beneath oaks near top of Mt. Emery, Chisos Mts., Big Bend National Park, alt. 7500 ft, 11 July 1955, *B.H. Warnock 12375* (SR); north side of Boot Canyon, Big Bend National Park, 8 July 1960, *D.S. Correll and H.B. Correll 23479* (TEX); infrequent on mid slopes, Jail Canyon, Glass Mts., elev. 4200 ft, 20 August 1968, *B.H. Warnock 23045* (SR). **Dallas Co.:** Greenhills Environmental Center, Dallas. 16 July 1986. *B. O'Kennon and L.E. O'Kennon 862* (SMU); Greenhills Environmental Center, Dallas. 19 July 1986. *W.F. Mahler 9993* (SMU). **Taylor Co.:** Abilene State Park, small limestone ridges and bluffs with *Juniperus* and *Quercus*, S of county road, 32°13'40"N, 99°53'W, elev. 2200 ft, 6 August 1975, *T. Wendt 1093 and E. Lott* (TEX).

**CORRELL'S CORAL-ROOT**, CURLY CORAL-ROOT- Fig. 7

***Hexalectris revoluta*** Correll var. ***revoluta***, Bot. Mus. Leafl. Harvard Univ. 10: 19, fig. 2. 1941. TYPE: MEXICO. Nuevo León: Sierra Madre Oriental, lower

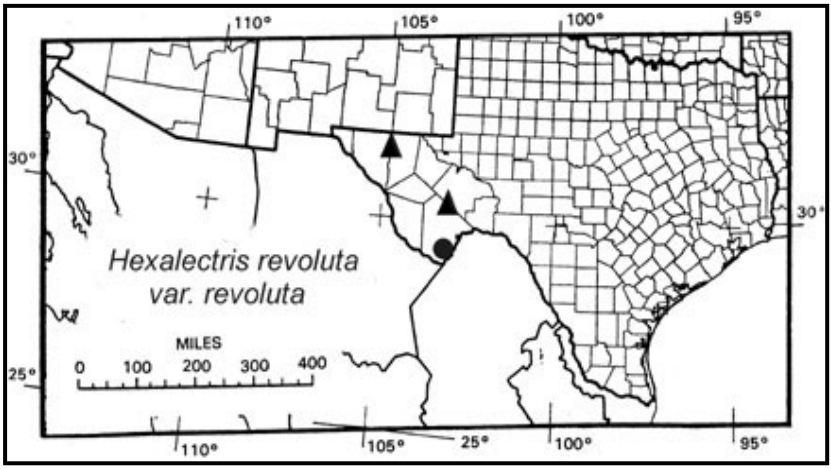


Fig. 7. Distribution of *Hexalectris revoluta* var. *revoluta* based on both herbarium specimens examined (dots), and either published or databased reports (solid triangles).

San Francisco Canyon, about 15 miles SW of Galeana, alt. 7500-8000 ft, sparse in open oak wood, 10 June 1934, *C.H. and M.T. Mueller 767* (Holotype: AMES!)

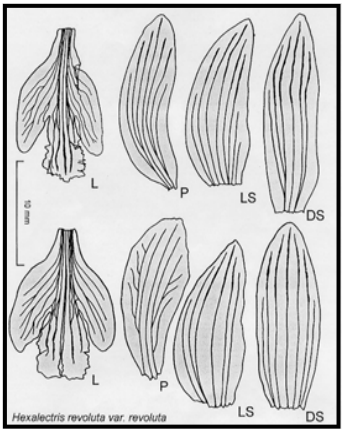


Fig. 8. *Hexalectris revoluta* var. *revoluta*. L, lip; P, petal; LS, lateral sepal; DS, dorsal sepal. Camera lucida drawings of softened flower from the holotype, *Mueller 767* (top row), and a paratype, *Mueller 733* (bottom row). Both from Nuevo León, Sierra Madre Oriental, México (Ames).

HABITAT, DISTRIBUTION, PHENOLOGY: Specimens with label data have been found in Oak woods but in Brewster County, Texas it was found beneath Maples. Luer (1976) reported it from groves of *Quercus gravesii* along creek beds in the Chisos Mountains. It has also been reported from shady places under *Agave lechuguilla* and *Quercus mohriana* where it occurs with *H. nitida* (Warnock 1977, Liggio and Liggio 1999).

There are two additional reports from Texas. One in the files of Texas Parks and Wildlife and discussed by Higgins (1989) includes correspondence with a detailed description of plants and the site in lower McKittrick Canyon in the Guadalupe Mountains National Park. The discovery was made by W.F. Jennings on 3 July 1986, but subsequent attempts to relocate the plants failed (J. Poole,

pers. comm.). The other Texas location is in the Glass Mountains of northeastern Brewster County where a photograph was taken and published by Warnock (1977). The specimen illustrated appears to be correctly identified as *H. revoluta*, but absolute identification is difficult because *H. revoluta* and *H. nitida* are very similar, differing principally in flower size and details of lip structure not evident in the illustration. In México it occurs in Nuevo León, San Luis Potosí and Tamaulipas. Peak flowering occurs from early to mid-June.

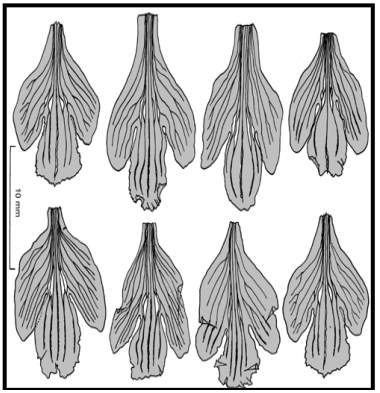


Fig. 9. *Hexalectris revoluta* var. *revoluta*. Lips from softened flowers. Upper Row, L to R: *Dressler 2807* from San Luis Potosí, México (US); Louie 4 from Brewster Co. Texas (SRSC); *Correll & Correll 23478* from Brewster Co., Texas (TEX); *Louie 1* from Brewster Co., Texas (SRSC); Lower Row, L to R: *Mueller 733* from Brewster Co., Texas (AMES); *Mueller 700* from Nuevo León, México (Ames); *Louie 3* from Brewster Co., Texas (SRSC); and *Rozynski 268* from Tamaulipas, México (F).

CLASSIFICATION AND IDENTIFICATION: The two veins on either side of the midvein of the lip are prominently keeled near the base of the lateral lobe (Figs. 8 & 9, previous page). A softened flower from *Louie 4* had 4 pollen packets on the stigma but with the viscidium still attached to the rostellar edge. Pollen tubes attached the packets firmly to the stigmatic surface. Consequently there is good evidence here for self-pollination by a lifting of the anther cap and rotation of pollen masses onto the stigmatic surface. An opportunity for pollen removal and transfer by insects probably exists when the flower first opens, as in other cases of auto- pollination by rotation (see Catling, 1990). *Hexalectris nitida* may be the obligate auto-pollinating member of a group of three including the facultative auto-pollinating *H. revoluta* var. *revoluta* and the obligate outbreeding *H. revoluta* var. *colemanii*.

Variability in lip shape and venation is illustrated in Figures. 6 and 7. The relatively long lateral lobes of the lip distinguish var. *revoluta* from both *H. spicata* var. *spicata*, *H. spicata* var. *arizonica* and *H. revoluta* var. *colemanii*. The truncate or broadly rounded middle lobe of the lip of var. *revoluta* also distinguishes it from var. *colemanii* which has a tapering and pointed terminal lobe.

REPRESENTATIVE SPECIMENS EXAMINED: **TEXAS. Brewster Co.:** Chisos Mts., 17 June 1931, *C.H. Mueller 8957* (TEX); Boot Spring, Big Bend National Park, 8 July 1960, *D.S. Correll and H.B. Correll 23478* (LL, TEX); Colima Trail, Chisos Mountains, Big Bend National Park, 21 June 1994, *Denise A. Louie* (5 sheets numbered 1-5, SRSC).

**COLEMAN'S CORAL-ROOT**

***Hexalectris revoluta*** Correll var. ***colemanii*** Catling, var. nov. Fig. 10

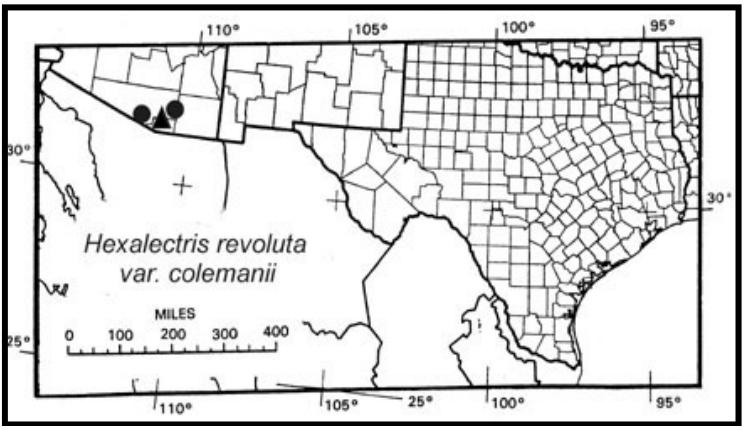


Fig. 10. Distribution of *Hexalectris revoluta* var. *colemanii* based on both herbarium specimens examined (dots) and either published or databased reports (solid triangles).

TYPE: UNITED STATES. Arizona: Pima County, northern Santa Rita Mountains, McCleary Canyon., elev. 5000', NE 1/4 Sect. 30, T18S, R16E, 3 May 1986, *Steven P. Mclaughlin 3441* (Holotype: ARIZ).

Fig. 11. *H. revoluta* var. *colemanii*.

A var. *revoluta* floribus magnioribus labio 16-20 mm longo, petalis lateralibus 17-21 mm longis et lobo centrali labii acuto differt. Differing from var. *revoluta* in its larger flowers with lip 16-20 mm long, lateral petals 17-21 mm long, and central lobe of the lip acute.

ETYMOLOGY: This variety (Fig. 11) is named in honour of Ronald A. Coleman, widely known for his exceptional work on the orchids of the southwestern United States and his outstanding photographs. Mr. Coleman provided much of the information necessary to characterize this new taxon.

DESCRIPTION: Stems pinkish-cream, 46-55 cm, with 4-6 sheathing bracts. Inflorescences 20-23 cm, floral bracts lanceolate, 3-12 mm. Flowers 13-19, with pedicellate ovaries 12-14 mm; sepals and petals whitish- or creamy-pink to very pale brown at the tips and partly with a suffusion of magenta or maroon, the veins maroon or brownish-maroon; dorsal sepal 20-2.5 x 4.5-5 mm; lateral sepals 17-21 x 6.5-7.5 mm; petals obovate-falcate or lanceolate-falcate, 19-22 x 4-5 mm; lip whitish-cream with maroon to magenta veins, the tips of the lateral and terminal lobes maroon or white between the veins, 16-20 x 10.5-12 mm, with 5 central veins with keels 0.2-0.5

Fig. 12. *Hexalectris revoluta* var. *colemanii*, flowers (upper and middle left), inflorescence (right) and oak scrub habitat (lower left). Photographed in Santa Cruz County, Arizona, in scrub oak forest on slopes of Sawmill Canyon, foothills of the Santa Rita Mountains, 5100', 12RO522500 3509744, 31 May 1997, by R.A. Coleman.

mm high, midvein keeled or not keeled in the midlobe, lateral lobes extending 1/5–1/4 length of midlobe; column white above, 14-15 mm, rostellum present.

HABITAT, DISTRIBUTION, PHENOLOGY: The type was collected under *Quercus emoryi*. Currently known only from Cochise, Pima and Santa Cruz Counties in Arizona (Figs. 11, previous page, also 12, and 13). An additional location within 10 miles of McLaughlin's site was reported by Coleman (1999) and a probable location in Cochise County was alluded to. This latter station, in the Dragoon Mountains on the west side of the Cochise Stronghold Monument, has now been confirmed on the basis of a single flowering specimen (R.A. Coleman, pers. comm.). Another location in Sawmill Canyon of Santa Cruz County has recently been reported (Coleman 1996) and is now supported by photographs at DAO. The cited specimens were in peak flower and therefore the flowering period is May and June.

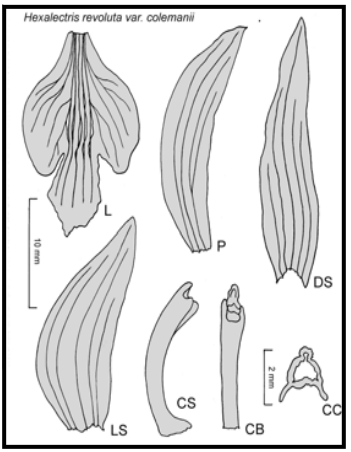


Fig. 13. *Hexalectris revoluta* var. *colemanii*. L, lip; P, petal; LS, lateral sepal; DS, dorsal sepal; CS, column from the side; CB, column from below; CC, cross section of column in center. Camera lucida drawings of softened flower from the holotype, *McLaughlin 3441*, col. in Pima Co., Arizona (ARIZ).

CLASSIFICATION AND IDENTIFICATION: The distinctive characteristics of this plant were first recognized in 1992 in the single plant collected by McLaughlin in 1986. It was not until Coleman found additional sites in Pima Co., and sent photographs of flowers that enough information was available to propose a new variety. Coleman reported the plants described here as var. *colemanii* as a major disjunction of *H. revoluta* (Coleman 1999, 2001). *Hexalectris revoluta* var. *revoluta* is a smaller flowered plant that occurs further to the southeast in Chisos and Guadalupe Mountains of Texas and in the Mexican states of Nuevo León, San Luis Potosí and Tamaulipas. Since the major differences from *H. revoluta* are largely size-related, but have a discrete distribution, the rank of *varietas*

(denoting discontinuous morphological differences of a particular type or in a small number of characters) seems most appropriate. There are also qualitative differences distinguishing var *colemanii* from var. *revoluta*. For example the central lobe of the lip of var. *revoluta* is more or less truncate (Figs. 8 & 9) rather than acute. The midlobe of the lip of var. *colemanii* extends more than twice the length of the lateral lobe (Fig. 11, 12, previous page) instead of less than twice the length as in var. *revoluta*. The sepals and petals of var. *colemanii* are more strongly revolute. *Hexalectris revoluta* var. *colemanii* has smaller keels on the central veins of the lip, and more strongly revolute sepals and petals with less pronounced veins than *H. spicata* var. *spicata* (*cf.* Fig. 15). It differs from *H. spicata* var. *arizonica* in having thinner perianth parts and an acute instead of rounded apex of the central lobe of the lip and in having a rostellum which prevents the kind of self-pollination characteristic of *H. spicata* var. *arizonica*. Variation within *H. revoluta* var. *colemanii,* described by Coleman (2002, *sub H. revoluta*) requires more study.

REPRESENTATIVE SPECIMENS EXAMINED: **ARIZONA. Pima Co.:**Baboquivari Mountains, Baboquivari Canyon, elev. 4500', 16 June 1981, *L. J. Toolin 1412* (ARIZ).

**Santa Cruz Co.**: in scrub oak forest on canyon slopes, Sawmill Canyon, foothills of the Santa Rita Mountains, 5100', 12RO522500 3509744, 31 May 1997, *R.A. Coleman* (DAO).

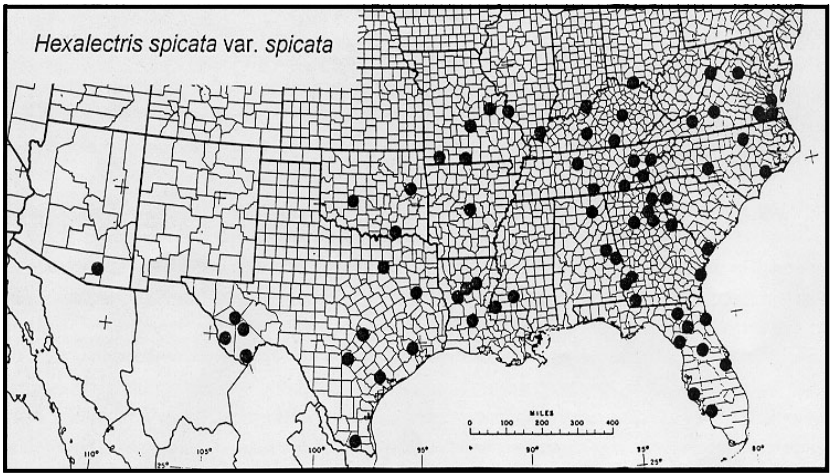


Fig. 14. Distribution of *Hexalectris spicata* var. *spicata* based on both herbarium specimens examined (dots) and either published or databased reports (solid triangles).

**CRESTED CORAL-ROOT** Fig. 15

***Hexalectris spicata*** (Walter) Barnhart var. ***spicata***, Torreya 4: 121. 1904.

*Arethusa spicata* Walter, Fl. Carol. 222. 1788. TYPE: (Holotpe, n.v.).

*Bletia aphylla* Nuttall, Gen. 2: 194. 1818. TYPE: (Holotype, PH!).

*Hexalectris aphylla* (Nuttall) Rafinesque, Neogenyton 4. 1825.

HABITAT, DISTRIBUTION, PHENOLOGY: Most specimen labels indicating a habitat refer to Oak or Oak-Hickory woods. In the United States this species occurs from Virginia and southern Missouri south to Florida and west to Texas and Arizona. The locations mapped in southern Illinois are based on specimens (n.v.) in the Southern Illinois University herbarium from Pope and Monroe counties. Generally peak flowering occurs from early May to late June in the south (Florida) and in August in the north (Kentucky and the Great Smoky Mountains of North Carolina), but regional variation is substantial. For example a collection (Correll 6448) from Columbia Co., Florida was in peak flower on 13 August.

CLASSIFICATION AND IDENTIFICATION: Typification of this variety was discussed by Catling and Engel (1993). The lip may be creamy-white without any purple lines or purple suffusion. This white-lipped form, which also has relatively pale sepals and lateral petals, has been named f. *albolabia* P. M. Brown (North American Native Orchid Journal 1(1): 10. 1995) with the type being Luer's photograph (The native orchids of the United States and Canada excluding Florida, p. 271, pl.. 74, no.1. 1975). The broadly rounded lip with prominent, more or less straight-edged keels (Fig. 15) are distinctive characteristics of *H. spicata* var. *spicata*.

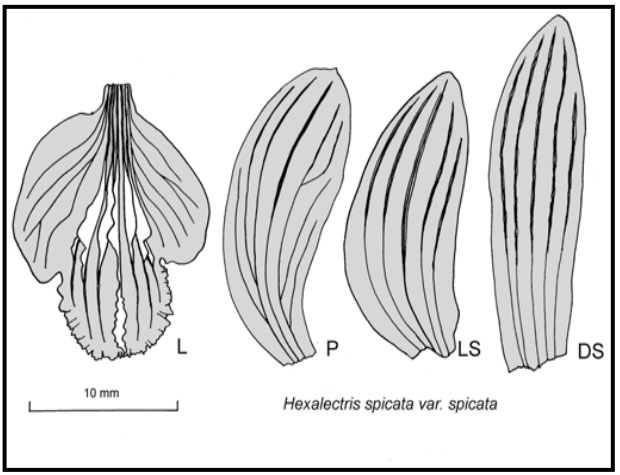


Fig. 15. *Hexalectris spicata* var. *spicata*. L, lip; P, petal; LS, lateral sepal; DS, dorsal sepal. Camera lucida drawings of softened flower from Mueller 2026 collected in Cañon Marisio above Municipio de Villa Santiago, Nuevo León, México (Ames).

REPRESENTATIVE SPECIMENS EXAMINED: **ALABAMA.** Falladuga, June 1882, *G.F. Atkinson s.n.* (CU); [prior to 1888], *A. Winchell s.n.* (US); Vances Station, 25 July [1870], *Chapman s.n.* (US). **Lee Co.:** Auburn, 20 July

1896, *L.M. Underwood s.n.* (NY); Auburn, 17 August 1897, *S.M. Tracy s.n.* (NY). **Marshall Co.:** 1 mi N of Guntersville on Ala. hwy 112, 1.3 mi N on road to Mt. Carmel, elev. 900 ft., 24 July 1956, *J. Thomas 174* (AMES). **Tallapoosa Co.:** Dadsville, 12-15 July 1900, *C.L. Pollard & W.R. Maxon 116* (US). **ARIZONA. Pima Co.**: Stone Cabin Canyon, Santa Rita Mts., 6-10 July 1903, *J.J. Thornber s.n.* (ARIZ). **ARKANSAS. Pulaski Co.**: Little Rock, July 1885, *H..E. Hasse s.n.* (NY); slope of hill on reservoir, Little Rock, 16 July 1887, *F.V. Coville 114* (US). **FLORIDA.** *Chapman 351* (NY); rich hummocks, 1844, *Chapman s.n.* (AMES, NY); near Tallahassee, [prior to 1900], *N.K. Berg s.n.* (NY). **Alachua Co.:** woods near Newberry, 5 June 1930, *J. Bright 4631* (SEL). **Brevard Co.:** Eau Gallie, 19 June 1960, *E. Smith s.n.* (AMES). **Columbia Co.**: rich woods between High Springs and Fort White, 13 August 1936, *D.S. Correll 6448* (AMES, NY); rich woods, Itchtucknee Springs, 13 August 1936, *D.S. Correll 6461* (AMES); Camp Elano, 4 July 1939, *W.A. Murrill 549* (US). **Lake Co.:** Eustis, 1-10 July 1895, *G.V. Nash s.n.* (AMES, MICH, NY). **Lee Co.:** dense woods, Middle Captiva Island, 7 June 1977, *W.C. Brumbach 9261* (AMES, NY, US); Sanibel Island, J.N. Darling National Wildlife Refuge, along Sanibel-Captiva Road, 0.7 mi SE from W end of refuge property, 2.7 mi SE of Wulfert, 50 m N of road, 16 June 1979, *B. & J. Hansen 5692* (SEL); Frieman property, Coconut Drive, western Sanibel Island, 12 June 1980, *W.C. Brumbach 9561* (AMES, MICH, NY). **Levey Co.:** salt marsh on Jones Creek nw corner of Sec. 31, T 16S, R 16E, Withlacoochee Bay WNW of Yankeetown, 4 May 1959, *C.E. Wood Jr. 9203*, K. Wilson & G. Cooley (AMES). **Saint Johns Co.:** on shell bank in cedar hammock along road near Anastasia, 9 August 1936, *D.S. Correll 6383* (AMES, CU, NY, US). **Sarasota Co.:** Keys, Sarasota, May 1876, A.P. Garber (US); 3222 Old Oak Drive, June 1970, *C.A. Luer 2334* (SEL). frequent in oak woods on Longboat Key, 7 June 1973, *C. Dodson, C. Luer, K. Tan 70* (AMES, SEL); 3222 Old Oak Drive, 11 June 1976, *G. Luer 34* (SEL). **GEORGIA.** Mid. Georgia, 1846, *C. Porter s.n.* (AMES); Mts of Georgia. *Dr. Chapman s.n.* (CU); Thomasville, 14 July 1913, *A.P. Taylor s.n.* (AMES); SW slope of Rennesaw Mt., 12 July 1900, *R.M. Harper 225* (NY, US); woods at southern base of Mt. Rachel, Dalton, 23 July 1900, *P. Wilson 109* (NY). **Clay Co.:** dry woods, crest of bluff along Cemochechobee Creek, N of Fort Gaines, 12 July 1947, *R.F. Thorne 5305* (CU, NY, US). **Decatur Co.:** ravine slope, bluff E of Flint River, 1 mi N of Chattahooche, Florida, 10 July 1947, *R.F. Thorne 5266* (AMES, CU). **Dekalb Co.:** Stone Mt., 2 August 1912, *F.W. Pennell 4046* (NY). **Jackson Co.:** woods along stream near Commerce, 20 August 1936, *D.S. Correll 6609* (AMES). **McDuffie Co.:** along branch, vicinity of Thomson, 9 August 1909, *H.H. Bartlett 1721* (MICH). **McIntosh Co.:** cleared grounds around buildings, Sapelo Island, 7 July 1954, *J.W. Hardin 173* (MICH). **Oconee Co.:** Alcovy Mt., alt. 600-900 ft, 13 July 1893, *J.K. Small s.n.* (NY). **Randolph Co.:** rich woods between Springvale and Cuthbert, 16 July 1903, *R.M. Harper 1883* (AMES, NY, US); near Cuthbert, 10 July 1936, *Mrs. J.N. Henry 995* (NY). **Stephens Co.:** Curahee Mt. off U.S. route 123 - Georgia route 13, SW of Toccoa, 21 July 1975,

*D.E. Boufford & E.W. Wood 17494* (AMES). **INDIANA. Harrison Co.:** black-white oak slope about 1.5 mi NE of Davidson, 3 August 1922, *C.C. Deam 37,231* (NY). **KANSAS. Montgomery Co.:** limestone cliffs, wooded hillside, rich leafmold, 5 m E, 2 m N of Elk City, 8 July 1949, McGregor 3393 (KANU)**. KENTUCKY.** cliffs of Kentucky River, 1835, *C.W. Short s.n.* (NY). **Edmonson Co.:** dry oak woods, SE of Mammoth Cave, 30 July 1922, *H.K. Svenson 147* (AMES); Mammoth Cave, 19 August 1941, *E.L. Braun 4094* (US). **Madison Co.:** woods at Big Hill near Berea, 29 July 1939, *F.T. McFarland 4171* (BAYLU); near West Pinnacle, Berea College Forest/Expt. Area, 1400 ft., 29 July 1965, *J. Grossman 570* (NY). **Wayne Co.:** rich wooded slopes, Beaver Creek, SW of Monticello, 12-14 July 1937, *L.B. Smith & A.R. Hodgdon 3861* (AMES, US). **LOUISIANA. Caldwell Parish.:** Bayou Castor drainage, W of Grayson, 14 June 1957, *J. Ewan 19211* (SMU). **Evangeline Parish:** woods behind Griffin Cemetery, ca. 6.4 mi NE of Turkey Creek on Griffin Cemetery Rd., 26 July 1980, *K.A. Vincent 3749* (NY). **Natchitoches Parish:** along Limekiln Bayou, about 4 mi E of Provencal, 27 July 1938,, *D.S. & H.B. Correll 9818* (AMES). **Winn Parish:** vicinity of limestone quarry, 4 mi W of Winnfield, 3 August 1938, *D.S. & H.B. Correll 10036* (AMES). **MISSISSIPPI.** Saratoga, 8 May 1903, *S.M. Tracy 8776* (AMES, CU, NY, US); **Lincoln Co.**: Brookhaven, August 1905, *C.T. Butler s.n.* (US). **Wilkinson Co.:** wooded ravines near the Tunica Waterfalls in Clark Creek Natural Area, ca. 1 mi SW of Pond, 91°30'W, 31°05'N, 21 August 1982, *J. Pruski et al. 2911* (NY). **MISSOURI.** wooded hillsides, Stony hills, 24 July 1891, *H. Eggert s.n.* (CU, NY); Kennett, 27 July 1895, *B.F. Bush 620* (AMES, NY). **Barry Co.:** Hailey, 25 July 1905, J.O. Phillips s.n. (US). **Franklin Co.:** Crescent Glade, Missouri Botanical Garden Arboretum, Gray Summit, 20 July 1939, *E. Anderson s.n.* (MO). **Pulaski Co.:** rich rocky woods at base of limestone bluffs, N side of Gasconade River, 2 mi NE of Waynesville, 28 July 1935, *J.A. Steyermark 19327* (MO). **Taney Co.:** Forsyth, late July 1930. *A.E. Brower s.n.* (CU). **NORTH CAROLINA.** Birdtown, 25 July 1888, *L.W. Johnson s.n.* (NY); wooded slope, French Broad River near Hot Springs, 8 August 1924, *L.E. Wehmeyer 464* (MICH, TEX). **Franklin Co.:** pine woods 2.7 mi W of Nash-Franklin county line on NC Rt. 56, 10 July 1956, *H.E. Ahles 16525* (AMES). **Onslow Co.**: wooded bluff above White Oak Riber about 1 mi N of Swansboro, 22 June 1947*, C.E. Wood Jr. & I.D. Clement 7046* (AMES). **Stanley Co.:** between Gold Hill and the falls of the Yadkin, 18 August 1891, *J.K. Small & A.A. Heller 436* (NY). **Swain Co.:** 20 July 1890, *H.C. Beardslee s.n.* (AMES); Great Smoky Mts, 10 May 1891, *H.C. Beardslee & C.A. Kofoid s.n.* (MICH); Great Smoky Mts, 8 August 1891, *H.C. Beardslee & C.A. Kofoid s.n.* (AMES, NY). **OHIO. Adams Co.:** Beaver Pond, Cincinnati, 2 September 1926, *E.L. Braun s.n.* (US). **Lincoln Co.:** (AMES). **OKLAHOMA.** trip from Fort Smith to the Rio Grande, Shawnee village on the Canadian River, 1853-4, *J.M. Bigelow s.n.* (US). **Bryan Co.**: 5 mi E of Bennington on US 70, 0.3 s & 0.3 e, 20 July 1974, *L.K. Magrath et al. 8532* (AMES, US). **Caddo Co.:** William's Wilderness, ca. 0.5 mi n & 2 e of Cement, in oak woods along West

Bill's Creek, 15 July 1974, *L. K. Magrath 8413* (AMES, ARIZ). **Grady Co.:** woodland, 5 m E of Alex, 24 June 1964, *Pearce 1340* (OKLA); **Muskogee Co.:** in leafmold in oak-hickory forest near landing on Greenleaf Lake, 3 miles E of Braggs, 18 July 1950, *Ikenberry, England & U.T. Waterfall 9623* (KANU, OKLA, SMU, TEX, ARIZ). **SOUTH CAROLINA.** Andersonville, 1885 (NY); summit of Paris Mt., July 1896, *J.K. Small s.n.* (NY). **Anderson Co.:** oak woods 6 mi NW of Anderson, 20 August 1927, *K.M. Wiegand & W.E. Manning* 909 (CU). **Beaufort Co.:** Bluffton, 1879, *J.H. Mellichamp s.n.* (NY); Bluffton, 1881, *J.H. Mellichamp s.n.* (AMES, US); 1882, *J.H. Mellichamp s.n.*(US). **TENNESSEE. Cocke Co.:** within 3 mi of Wolf Creek Station, 14 September 1897, *T.H. Kearney 896* (NY, US). **Davidson Co.**: Nashville, 10 August 1896, *A. Ruth 436* (AMES); 5 August 1898, *M. Johnson & A. Gattinger s.n.* (NY); Nashville, September 1898, *A. Gattinger s.n.* (NY). **Franklin Co.**: Huntland, 6 August 1939*, H.K. Svenson 10289* (AMES, SMU). **Knox Co.:** Sharp's Ridge, W of Knoxville, 23 July 1921, *AR. Bechtel 10853* (CU). **Polk Co.:** Parksville on Ocoee River, mts. of East Tennessee, August 1898, *A. Gattinger s.n.* (NY). **TEXAS. Bexar Co.**: Camp, Gutzert Ranch, Helotes, 21 May 1925, *A.H. & A.A. Wright s.n.* (CU). **Brewster Co.:** lower willow creek basin of Chisos Mts., 16 July 1937, *B.H. Warnock 81551* (NY); lower Oak Creek Canyon, Big Bend National Park, Chisos Mts., 3 August 1937, *B.H. Warnock 598* (SR); Maple Canyon, Glass Mts., 18 June 1941, *B.H. Warnock 21297* (TEX); rare on Gage estate, 23 mi NE of Alpine, alt. 4500 ft, 30 July 1957, *W. McBryde s.n.* (SR). **Cherokee Co.:** edge of creek beside roadside Park west of Hwy 69, between Rusk and Alto, 10 August 1968, *D.S. Correll & H.B. Correll 36056* (TEX). **Dallas Co.:** NW corner of Tenison Park, 300 yds E of E. Grand Ave., Dallas, 17 June 1947, *R.E. Niblack 16* (SMU); in cedar forest near Duncanville, 6 June 1962, *H.B. Correll, C. Schweinfurth & Mrs. R. Rody s.n.* (TEX). **Harris Co.:** steep sandy creek banks near Houston, 18 May 1917, *E.J. Palmer 11944* (AMES). **Hidalgo Co.:** valley of the Rio Grande below Donna, *C.C. Parry, J.M. Bigelow, C. Wright & A. Schott s.n.* (NY). **Jeff Davis Co.**: Little Aguja Canyon, Davis Mts., alt. 550 ft, 24 August 1948, *B. H. Warnock & B. L. Turner 8144* (SR); Espy Ranch, drainage into Little Aguja Creek, east of Orchard Spring, elev. 1311 m, 20 June 1987, *J.O. Larke 837* (SR). **Presidio Co.:** Horse Creek canyon on NE slope Chinati Peak, alt. 6300 ft., 29 July 1942, *L.C. Hinckley 2550* (AMES, NY, ARIZ); head of Pinto Canyon on the north side of the Chinatis, elev. ca. 5000 ft, 10 June 1977, *M. Butterwick & E. Lott 3828* (TEX). **Travis Co.:** Austin, 1922, *B.C. Tharp 1260* (AMES, US); Austin, 21 May 1922, *B.C. Tharp 1493* (TEX); Austin, 20 May 1931, *B.C. Tharp 1260* (TEX). **Victoria Co.:** just S of Coleto Creek, approx. 16 mi NW of Victoria, 9 May 1976, *G. Ajilvsgi 3368A* (SMU). **WEST VIRGINIA. Pendleton Co.**: slope in Smoke Hole near S branch of Potomac, 30 July 1949, *H.A. Allard 19562* (US). **VIRGINIA.** Shenadoah Valley, *Herzog s.n.* (NY); woods 2-3 mi E of Winwiddie, 16 July 1939, *M.L. Fernald & B. Long 10605* (AMES). **Amherst Co.:** near Amherst, 20 July 1934, *W.C. Gregory s.n.* (US). **Culpepper Co.:** Winston, on rocky summit of Buzzard

Mt., west peak, 28 July 1970, *J.A. Churchill s.n.* (SMU). **Nansemond Co.:** woods E of Suffolk, 10 September 1946, *M.L. Fernald, B. Long & I.D. Clement* 15251 (AMES); Suffolk, 8 August 1954, *F.H. Sargent 6989* (SMU). **Pulaski Co.:** limestone bluffs along New River about 5.75 mi SE of Pulaski, 1 September 1946, *C.E. Wood 6741* (AMES); **Southampton Co.:** woods near Nottoway River above Carey Bridge, 20 July 1939, *M.L. Fernald & B. Long 10606* (AMES). **Sussex Co.:** Burt, 24-25 July 1936, *M.L. Fernald & B. Long 6182* (AMES); woods near Burt, 20 September 1937, *M.L. Fernald & B. Long 7399* (AMES); woods near Chub, 22 August 1940, *M.L. Fernald & B. Long 12623* (NY, US). **York Co.:** 1 mi W of Williamsburg, 3 July 1921, E.J. Grimes 3915 (AMES); shore of Lake Matoaka, 1 mi W of Williamsburg, 1 August 1927, *E.H. Lincoln s.n.* (AMES, US); Williamsburg, 4 August 1928, *E.T. Wherry s.n.* (AMES); Williamsburg, 1928, *E.H. Lincoln s.n.* (AMES).

**ARIZONA CORALROOT** Fig. 16

***Hexalectris spicata*** var. ***arizonica*** (S. Watson) Catling & Engel, Lindleyana 8(3): 122-125. 1993.

*Corallorhiza arizonica* S. Watson, Proc. Am. Acad. 17: 379. 1882.

TYPE: UNITED STATES. Arizona: in rocky places on the Santa Rita Mountains, July 1881, *C. G. Pringle* (Holotype: NY!).

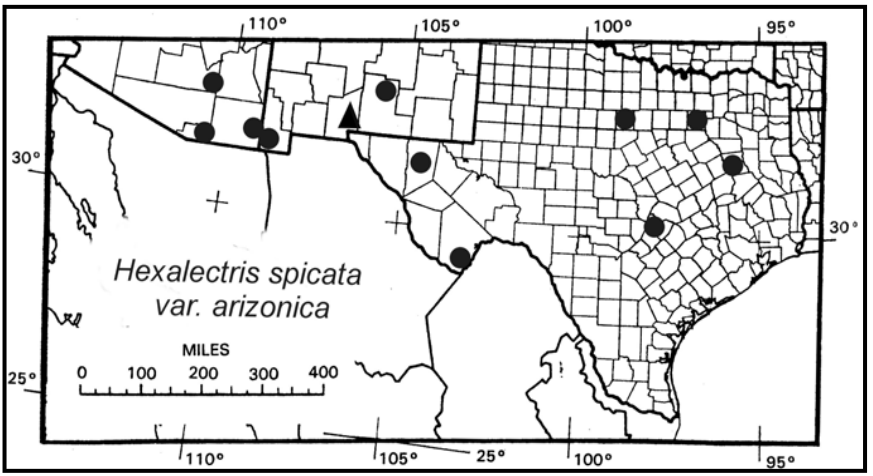


Fig. 16. Distribution of *Hexalectris spicata* var. *arizonica* based on herbarium specimens examined.

HABITAT, DISTRIBUTION, PHENOLOGY: The habitat of *H. spicata* var. *arizonica* is Oak, Pine or Juniper woodland over limestone (Catling & Engel 1993). It occurs in Texas, southern New Mexico and southeastern Arizona. The locations in New Mexico plotted on the map (Fig.16) are based on specimens at New Mexico State University. The report from Dona Anna Co. in New Mexico is based on a listing without any material evidence in the University of

New Mexico rare plant database. It is known in México only from the state of Coahuila. Peak flowering occurs in June and July. In Texas this is later than nearby populations of var. *spicata* which flower in primarily in May (Engel 1997).

CLASSIFICATION AND IDENTIFICATION: Most of the plants of this western variety have closed flowers or flowers that do not open as widely as those of *H. spicata*. Illustrations and a description of the auto-pollinating mechanism are provided by Catling and Engel (1993).

REPRESENTATIVE SPECIMENS EXAMINED: See Catling & Engel (1993).

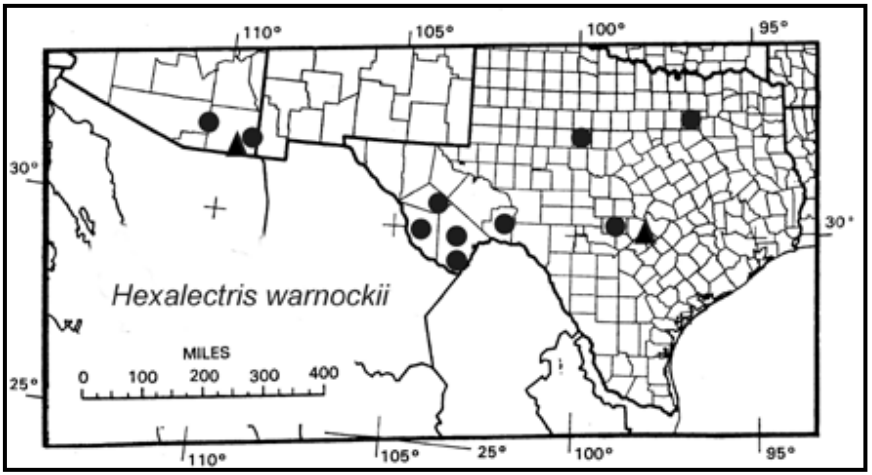


Fig. 17. Distribution of *Hexalectris warnockii* based on both herbarium specimens examined

**TEXAS PURPLE-SPIKE** Fig. 17

**Hexalectris warnockii** Ames & Correll, Bot. Mus. Leafl. Harvard Univ. 11: 8, plate 2. 1943. TYPE: UNITED STATES. Texas: Brewster Co.: rare in Upper Blue Creek Canyon, Chisos Mts., 25 June 1937, *B.H. Warnock 21261* (Holotype: TEX!, Isotypes AMES! NY! PH! SMU!)

HABITAT, DISTRIBUTION, PHENOLOGY: *Hexalectris warnockii* is most often found in leaf litter under Oaks and/or Junipers in the floor of canyons. Liggio and Liggio (1999) refer to the habitat as shaded slopes and rocky creek beds under oak, madrone, and pinyon pine. In Texas it occurs in calcareous soils of the Edwards Plateau, White Rock Escapment and Trans-Pecos (Liggio and Liggio 1999). Several specimen labels refer to gravelly limestone soil. Peak flowering occurs from early July to mid-August.

Until recently this species was known only from central and Big Bend regions of Texas and southeastern Arizona (Luer 1975). Its range in the United States was extended to Dallas Co., Texas by Engel (1987). It was recently re-

ported from México on the basis of a specimen from the tip of the Baja California peninsula collected in 1990 (Salazar Chavez 1991). The Baja record is a major disjunction to the west. It was first collected in México in 1973 in Coahuila (62 miles WSW of Cuatro Cienegas at 5300 ft, 8 Aug.1973, J. Henrickson 12160, TEX), but was not identified at the time. Here it occurred occurred in leaf litter on the shaded side of a limestone canyon with *Quercus* spp., *Acacia berlandieri*, *Agave* spp., *Dasylirion* sp., *Leucophyllum* sp., *Fraxinus* sp., *Echinopteris* sp., and *Psoralea* sp. At a recently discovered site in the Huachuca Mountains of Arizona (Bowers 1993) it occurred with *Platanus wrightii*, *Amorpha fruticosa*, *Quercus arizonica*, and *Q. hypoleucoides*. Specimens or photographs have not been seen to support the reports from Hays County, Texas (J. Poole, pers. comm.). An occurrence in the Mule Mountains of Arizona (Arizona Game and Fish Department 2001) is based on a correctly identified photograph confirmed by R.A. Coleman.

Fig. 18. *Hexalectris warnockii*. Chiricahua Natl. Monument, Cochise County, Ariz. Photo: R. Coleman.

CLASSIFICATION AND IDENTIFICATION: The specimens collected by Warnock from "Upper Juniper Spring and Blue Creek" are not isotypes because the type cited by Ames and Correll does not refer to "Juniper Creek," this label presumably representing a separate gathering on the same date. An excellent illustration by G. W. Dillon accompanies the original description (Ames & Correll 1943, pl. II) and shows the distinctive, prominent, scalloped and undulated keels (lamellae) that are most well developed in the centre of the terminal lobe of the lip (Fig. 15). The sepals, petals, and edges of the lip are usually maroon. This may be referred to:

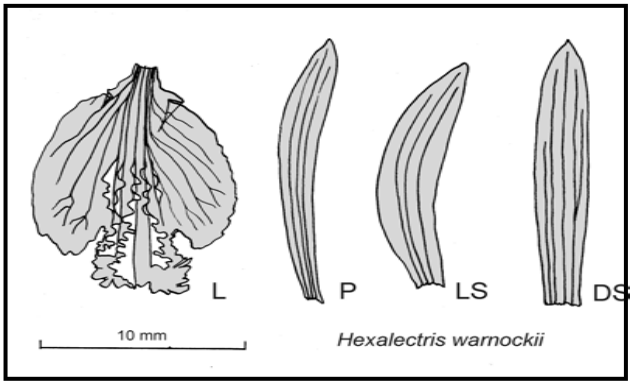


Fig. 19. *Hexalectris warnockii*. L, lip; P, petal; LS, lateral sepal; DS, dorsal sepal. Camera lucida drawings of softened flower from *Warnock 658* collected in the Chisos mountains, Brewster Co., Texas (US).

REPRESENTATIVE SPECIMENS EXAMINED: **ARIZONA. Cochise Co.:**

Chiricahua National Monument, mouth of Rhyolite Canyon, 29 August 1939, *F.L. Fish s.n.* (ARIZ); headquarters area Chiricahua National Monument, elev. 5300 ft, 3 September 1963, *H.L. Parent s.n.* (ARIZ); Oversite Canyon, Huachuca Mountains, T23S, R20E, sect. 33, *J. E. Bowers 3347* (ARIZ). **TEXAS. Brewster Co.:** Love Peak Basin, Chisos, 20 July 1932, *C.H. Mueller s.n.* (TEX); dry, high slopes of Wade Canyon, Chisos Mts., alt. 6500 ft., 20 July 1935 (NY); Chisos Mountains State Park, August 1935, *E.G. Marsh Jr. 69* (TEX); near Lost Mine Peak, Chisos Mts., 6500 ft, 18 June 1937, *B.H. Warnock 20774* (TEX); Upper Juniper Spring and Blue Creek, Chisos Mts., Big Bend National Park, 25 June 1937, *B.H. Warnock 658* (SR, US) (Fig. 18); Upper Oak Canyon, Big Bend State Park, 28 July 1937, *Marsh 51-429* (TEX); along trail to Baldy Peak, Chisos Mts., 30 July 1937, *B.H. Warnock 20776* (TEX); Window Trail, Chisos Mts., 7 July 1944. *V.L. Cory s.n.* (AMES); juniper-oak forest near "window" of Basin, Chisos Mts., 4 August 1946, *D.S. Correll 13630* (SMU); under oaks along canyon floor at window, Basin, Chisos Mts., 4 August 1946, *C.L. Lundell and A.A. Lundell 14609* (TEX); sparse beneath oaks on trail to Lost Mine, Chisos Mts., 1 August 1950, *B.H. Warnock 9207* (SR); on rocky wooded slope, north side of Boot Canyon, Big Bend National Park, 8 July 1960, *D.S. Correll and H.B. Correll 23480* (TEX); Cattail Falls, Big Bend National Park, 1 July 1964, *P.D. Whitson s.n.* (BAYLU); sparse beneath oaks at Cattail Falls, Big Bend National Park, alt. 4000 ft, 15 August 1966, *B.H. Warnock 20943* (SR); rare beneath oaks at Cattail Falls, elev. 5000 ft., 23 August 1966, *B.H. Warnock 20734* (SR); rare in basin at Iron Mt., elev. 4100 ft, 20 July 1968, *B.H. Warnock 23263* (SR); **Dallas Co.:** Greenhills Environmental Center, Dallas. 16 July 1986. *B. O'Kennon and L. E. O'Kennon 861* (SMU); **Gillespie Co.:** oak-cedar grove, 1 mi N of Crabapple Creek on the road from Fredericksburg to Enchanted Rock, 18 June 1946, D.S. Correll and H.B. Correll 12765 (SMU). **Jeff Davis Co.:** Fern Canyon, Alpine, 7 July 1925, *Mr. & Mrs. W.W. Wimberley s.n.* (CU); W side of Goat Canyon, Davis Mts., alt. 7500 ft, 20 August 1935, *L.C. Hinckley 350* (NY); sparse in Fern Canyon, 10 miles north of Alpine, 22 August 1939, *B.H. Warnock 21226* (TEX); 5 mi SE of Ft. Davis, at S end of Arkansas Mesa, near north rim of Musquiz Canyon at the CDRI visitors' center, behind the pavilion, elev. 1540 m, 25 July 1985, *A.D. Zimmerman 2270 and D. Miller* (SR). **Presidio Co.:** oak/Juniper woodland, high up slope near cliff face NE of Chinati Pk., elev. 5000-6500 ft., 26 July 1989, *A.L. Hempel 314* (SR). **Taylor Co.:** Abilene State Park, small limestone ridges and bluffs with Juniperus and Quercus, S of county road, 32°13'40"N, 99°53'W, elev. 2200 ft, 6 August 1975, *T. Wendt 1092 and E. Lott* (TEX). **Terrell Co.:** live oak woods along Independence Creek, 1 mi above its junction with the Pecos River, rare, 22 June 1949, G.L. Webster 378 (TEX). A form with these parts whitish-yellow was found by Dale Miller in Dallas, Texas.

***Hexalectris warnockii*** Ames & Correll f. ***flavida*** Catling, f. nov. TYPE: UNITED STATES: Texas: Dallas, July 1993, D. Miller (AMES). Sepalis, petalis et labello flavidis. With the sepals, petals and lip pale yellow.

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# LOST FOR A CENTURY!

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It was a perfect January morning in southern Florida. The sky was clear, the air was dry, and the temperature a perfect 74°F. (about 24°C.). I turned my vehicle off of Janes Scenic Drive onto the white gravel road of the Fakahatchee Strand Preserve State Park's offices. There I met with a few members of our group and stretched my muscles, sore after the long ride from Miami. We exchanged greetings and pleasantries and awaited the last member's arrival. Already my pulse was quickening in anticipation of the day's events with our seasoned, fun loving field companions. A brief discussion of the day's strategy, a few laughs, and last minute equipment checks and we were on our way.

Fig. 1. *Cranichis muscosa* plants on log. January, 2004 Photo: R. Clusman.

We entered the swamp. Our destination was the heart and arteries of Southwest Florida's Fakahatchee Strand. Our small company, of varied interests and backgrounds, was intent on exploring new areas to observe, document and photograph all of the rare flora and fauna, as well as digest the beauty of this swamp wilderness. Although I thoroughly enjoy every moment I have in the Fakahatchee, I hope in some small way we are contributing to the vast body of knowledge of this magnificent cypress strand and continue to offer more reason to preserve this natural wonder. The trek is arduous, but this company was focused only on the rewards. Little did we know what a discovery was waiting for us!

The first slough we entered looked like it had potential. We split into smaller groups and headed south, interrupting the silence by communicating with an occasional shout of "hooty-hoo" or the calling out of a threatened or endangered orchid, bromeliad, or fern. An hour had passed and I was not impressed with the area. The slough became shallow and my quest was the deeper limestone troughs that have been dug by Mother Nature throughout the centuries. The slow flow of water has gradually eroded the limestone to form a kind of stream within the strand. The predominant trees along the edges of these deeper areas are pond apple and pop-ash. It is here these trees become festooned with rare epiphytes. We altered our search pattern and intercepted a great looking slough. I broke south while the rest headed north.

Mike Owen, the park's biologist, and his assistant, Karen Relish, teamed up on their northerly trek. Karen, while slogging, was intently recording the rare flora she encountered up in the tree branches, cypress knees, stumps and logs

(fallen dead trees). Something different caught her eye so she called out to Mike for further examination. There on a seven foot long prostrate log laden with moss was a group of small plants with their roots embedded in the abundant moss (Fig. 1, next page). Several plants were in bloom and after a cursory examination, Mike believed they were orchids, so they carefully removed a specimen for identification.

Fig. 2. *Cranichis muscosa* Swartz. 1788. January, 2004 photo: R. Clusman.

I returned to Janes Drive about 20 minutes ahead of Mike and Karen. When they emerged from the water, they told me about their find and proceeded to remove the carefully wrapped plant out of a backpack. Upon seeing it, I immediately identified it as *Cranichis muscosa* and the year 1903 flashed in my mind like a blinking neon sign. But could this really be? I called out to Saul Friess, a member of our group, in the hope that he had his copy of Brown's *The Wild orchids of Florida*, which he usually carries with him. Intent on confirming its identity I excitedly turned the pages to the index and then to the photo of the plant I loudly exclaimed, "touchdown," an expression this group uses when we discover something special or unusual. For me the moment was truly thrilling. I don't think my companions realized the enormity of the find but my zealous enthusiasm eventually caught on. Plans were confirmed to return the next day for photographs and I had a euphoric ride back to Miami.

The usual members of our group include FSSP Biologist Mike Owen, FSSP Biologist's Assistant Karen Relish, Saul Friess, a professional photographer, Robin Drake, an Americorp Environmental Sciences Educator, and orchid enthusiasts Rick Janiec, and the author.

The genus *Cranichis* is composed of 60 species (Dressler, 1993). *C. muscosa* is a small terrestrial or semi-epiphytic orchid approximately 4 to 10 inches in height when in bloom. It has a basal rosette of petiolate leaves, green to light green in color. The flowering shoot bears several bracts as it ascends. The flowers are white with greenish speckles (Fig. 2). I found it to be similar to P*latanthera nivea*. *Cranichis* is derived from the Greek words meaning, "having a helmet" and *muscosa* from the Latin word meaning "mossy" (Correll, 1950). These words clearly describe this little gem because the lip, which is uppermost, forms a cover over the column and our plants were found imbedded in abundant moss. J. E. Layne first collected a specimen in May of 1903 in Lee County, Florida, which included the Fakahatchee at that time. In December of the same year A. A. Eaton vouchered a specimen in Dade County (Correll, 1950). I have since learned Eaton had collected another specimen in 1905 in Dade County (Gann et al, 2002). In a personal communication, Dr. Carlyle Luer, author of the landmark book The Native Orchids of Florida

(1972) advised this writer he had seen it once in Florida, but there is no formal record of this sighting. Hence, this is the first actual confirmed and documented sighting of this orchid species in the United States in right at a century!

This colony was made up of 40 individual plants of which seven were flowering. Three more were growing on a cypress knee a few feet away. The best news is that Mike believes he has seen this plant at three other locations within the strand and we hope to investigate for confirmation in the next few weeks.

Fig. 3. Slough, The Fakahatchee Strand State Park.. photo: C. Pelchat.

If you are ever in south Florida and orchid hunting is on your agenda I suggest a trip to the Fakahatchee (Fig. 3). The Fakahatchee Strand Preserve State Park (FSSP) is a unique swamp forest approximately twenty miles long and three to five miles wide. This 80,000-acre wilderness has a diverse plant and animal population. It houses 44 species of orchids and numerous threatened or endangered ferns and bromeliads; many not found anywhere else in the United States. It is home to the Florida Panther, Everglades Mink, and Florida Black Bear. Late October through November is an excellent time to visit the strand. The temperature is cooler and many epiphytic orchids may be seen in bloom. We consider June through July the best time to see the infamous *Dendrophylax lindenii,* the ghost orchid, in bloom. You may need to pack some mosquito repellent because they may be somewhat pesky during the summer. For information regarding ranger-led swamp walks contact the Park Manager, Greg Toppin at 239 695 4593 or further information may be obtained on-line via www.floridastateparks.org/fakahatcheestrand/default.asp.

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An individual interested in being a member of the FSSP Citizen Support Organization, The Friends of the Fakahatchee, may contact it via www.FriendsofFakahatchee.org. This organization is dedicated to support and educational activities specific to this Florida natural wonder.

# DISCOVERING A NEW ORCHID

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(photos by the author)

I was just coming in from work that September day in 1998 when my telephone rang. I had been anticipating a call, but then, I had been for weeks. On the other end of the line was Dr. John Freudenstein of Kent State University. I stood transfixed, hardly believing what I was hearing. Dr. Freudenstein was telling me that he was going to describe my orchid as a new species, and, he was going to name it for me. The news hit like a ton of bricks, yet I stood quietly as if I hadn't heard anything at all. I tried to listen as Dr. Freudenstein explained how the process would work: he would do further research through the literature; consult with other experts and various herbaria; then write a formal description for publication. He would then send the text for the required review. After that was successfully completed, it might still take a while before publication. As it turned out, it would take a full year before the description became public in the journal Novon in December of 1999. The publication would come just in time to make a tremendous impact on another unfolding event that would change my life. Perhaps a bit of background information might help make some sense of all this.

Almost every spare moment I have, I hunt wild orchids. I had walked part of the old abandoned railroad bed earlier that summer of 1996. It was hot and humid, and there were thunderstorms lurking about. I had quickly been amazed at the abundant number of showy orchis, *Galearis spectabilis*, along the edges of the adjoining wilderness area. It was a very acidic habitat but here were as many of the more basic soil loving showy orchis as I had seen anywhere. There were countless downy rattlesnake orchids, *Goodyera pubescens*, and a decent population of pink lady's slippers, *Cypripedium acaule*, hovered around a pile of eroded sand as fine and yellow as in any child's sandbox. A few pad-leaf orchids, *Platanthera orbiculata*, were scattered in the rich northern forest habitat. It was August and I had missed the blooming times for all these orchids. But a bit farther along, I walked into a small patch of yellow fringed orchids, *P. ciliaris*, in full bloom like flames from bright candles. I was especially intrigued by a sprinkling of spotted coralroot plants, *Corallorhiza maculata*, also in prime bloom. "This is going to be a really good orchid area," I told myself. And sure enough, over the last seven seasons, I have encountered fourteen orchid species in this less than half-mile walk.

It was autumn before I again walked the old railroad bed. This time I would walk farther. The air was cool and pleasant. Somewhere between a quarter and a half-mile into my walk, I noticed four plants of coralroot capsules. I would have continued on except for the odd color that caught my eye. The capsules were a deep mahogany, a color not common to any coralroot capsules of which I had knowledge. Knowing the considerable number of variations and forms spotted coralroot has across the continent, and since I had already seen spotted coralroots in the area, I really didn't question the identity of the plants. My

curiosity concerned the different and beautiful color. These plants would surely make some interesting photographs the next flowering season. I decided to mark the spot and moved on down the roadbed.

Still, the color of the capsules played in my thoughts. In late October, I visited with my good friends and fellow orchid enthusiasts Clete Smith and Al and Scott Shriver of Pittsburgh who had come to botanize in the southern West Virginia area. Also along was Bill Grafton of West Virginia University. Bill is one of the finest botanists I know. It wasn't a long drive from where we had met, so I talked the others into coming to see the unusually colored capsules. Everyone took note of the color but we all decided there was little chance of it being anything but a color form of spotted coralroot.

Fig. 1. Individual flower. *Corallorhiza bentleyi* J. Freudenstein.

It was mid-July, 1997, when I returned to check on the coralroots. There were eight plants but none had opened their flowers. The deep mahogany color of the capsules had been replaced by a chestnut-brown colored ovary. The sepals, still tight around the florets, were a lighter tan color which gave the flowers a two-tone appearance. I would learn that, as the plants mature, the color deepens to a mahohany, almost lacquered color. There was, however, nothing to photograph. I decided to wait a few days and return. (See flower description and photographs in Novon, vol. 9, no. 4, Dec. 1999 and Native Orchids of the Southern Appalachian Mountains, UNC Press, 2000.) I returned about a week later—still no open flowers. The area was in a multi-year drought and I speculated that the dryness might cause the plants to wither before they opened their flowers. I had seen this type of weather damage previously, especially among some of the late summer *Platanthera* species. I reluctantly decided to come back a third time; not really sure if it would be worth the effort.

In the meantime, the late Bobby Toler and I traveled to Tennessee and Kentucky on a three day orchid hunting trip. We were successful in getting fresh photographs of monkey-face, *P. integrilabia*; yellow fringeless orchid, *P. integra*; little ladies' tresses, *Spiranthes tuberosa*; and crested coralroot, *Hexalectris spicata.* A day or two after my trip, I was again walking the old railroad bed. I was melting in the August heat. To my considerable disappointment and frustration, none of the eight plants had opened their flowers. But then, I noticed that the flowers looked "pregnant" and many were drooping along the stem. I asked myself, "How did that happen? The flowers never opened. I know that for a fact!" I finally flattened myself on the ground determined to try and understand. I took the point of my knife and forced open one

of the flowers. I knew immediately I was seeing something totally new, at least to me.

The lip of the flower was not spotted, but I had seen that occurrence in spotted coralroot at other sites. The lip was entire, no three-lobed lip as in spotted coralroot, and the margins of the lip were rolled inward, like Wister's coralroot, *C. wisteriana*, or the autumn coralroot, *C. odontorhiza*. The date was now four months too late for Wister's coralroot and a month too early for the autumn coralroot. Also, the color, the color of the lip was a bright yellow; unlike any other lip color I had seen in any other coralroot species, variety, or color form. Another fact finally hit me: the flowers had fertilized themselves! I checked another flower on a different plant and got the same results. I didn't know what I had, but I knew it was something special,...and I knew I was excited,... *very* excited.

Fig. 2. *Corallorhiza bentleyi* J. Freudenstein.

It took me into the fall as I searched for help in determining what was going on with the new plants I had found. Finally I was led to Kent State University and Dr. John Freudenstein, one of the world's foremost orchid authorities—especially expert in the genus *Corallorhiza.* Dr. Freudenstein had written a monograph describing the genus in 1997. Now the problem was that it was too late in the season for studying fresh plants. Still, I found Dr. Freudenstein quite courteous and I sent him the specimen I had taken in August. In a short time, I received his reply. He wasn't sure what I had but it certainly looked fascinating—interesting enough that he wanted to see the plants the next season. It would be a long year for me and almost two full years from the time I had first seen the strangely colored capsules.

Dr. Freudenstein drove down from Ohio and we met early in the morning of July 16, 1998. I had already checked the site and found twenty plants; the population was growing. But the plants were the same as the previous year – cleistogamous flowers. Needless to say, my anticipation grew as John and I traveled to the site and discussed the possibilities. John would not commit to

any one line of thought. We reached the site and John began his systematic field observation. I watched as he took a flower (Fig. 1, p. 32) and sat down in the middle of the old roadbed. It was too much for me; John's quiet, "That's unusual." I could see that a verdict was not going to come quickly so I passed the time surveying the area for more plants. This search came to the same result as all the others I had made; no more plants. Finally John stood up, "I've seen as many coralroots as anybody but I've never seen this." I asked for a conclusion, but John wouldn't give me one. There would have to be more research and he took a fresh sample for further study and DNA analysis.

Those two months from July to September were like waiting for spring! Would it ever get here? It was then that I got the call which brings us back to the beginning of this narrative, except for the full story of how that call so positively impacted my life.

In the process of writing the description for the new species, John Freudenstein took a new position at the Ohio State University and moved to Columbus. I feared the move would cause more delay, but the description was written promptly and John drew fabulous diagnostic sketches of the new species. Next in the process was to have several other qualified people read, review, and approve the manuscript. It would take a while, and it was not until December 1999 before the description would appear in print.

The news came just in time! I had contracted with the University of North Carolina Press at Chapel Hill to publish my book, Native Orchids of the Southern Appalachian Mountains. And the final proof was due in the spring of 2000. The formal publication of the new species description meant that I could now include all the information complete with the first photographs in my book. The book could never have been complete without mention of my new orchid!

There is really no way I can describe the feelings or what it means to me to have discovered a new species of orchid, not to mention having that species named for me. I must be honest; I had dreamed of such a thing. I think we all do at some time or another. The dream was persistent but, in reality, never really expected to materialize. Bentley's coralroot, *Corallorhiza bentleyi* J. Freudenstein (Fig. 2, previous page) has continued to be a tremendous source of pride and pleasure. In the years following the designation of a new species, I have found new sites for the plant. My friends from Pittsburgh discovered a new location some ninety miles from my original discovery site. There are now more than a dozen sites including two West Virginia counties and one Virginia county. In the year 2001, there were nearly 400 plants counted, ninety-three of which were growing at the original site where I had found only four plants in 1996. A new variety with open flowers has been discovered and a new form with red-lipped flowers is now known to exist at several of the sites. Surely there are more sites to be discovered. I only hope to be a part of these new findings for a long time to come.

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# ONCE LOST—NOW FOUND!

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It has been since the late 1970s, the last sighting of *Ponthieva brittonae* Ames was recorded. That last confirmation was by local botanists Roger Hammer, Dick Remis and Chuck McCarthy who observed it along a fire road west of Mosier Hammock in Everglades National Park. These last-known plants numbered fewer than five, and were apparently wiped out by the blade of a park service grader around 1980. This species of *Pontheiva* is known only from South Florida and the Bahamas. Hence, until this year, no one had seen the plants since 1980.

Fig. 1. *Ponthieva brittonae* Ames.

In January, 2004, group of botanists on a contract survey for the park service stumbled upon orchid leaves in several sinkholes while doing a survey near Wright's Hammock (Fig. 1). The habitat is one of open pinelands with saw palmettos and other ground forbes and grasses. Digital photos were shown to Roger Hammer and the possibility of the rediscovery of the orchid became apparent. Several flower spikes were noted at the time of the survey. Several individuals, including Roger Hammer, Dick Remis and Russ Clusman visited the site area on the first of February. The plants had begun to bloom and the discovery of the lost *Ponthevia* was confirmed. I ventured down the following weekend with Russ Clusman, Chuck Wilson and Sol (a friend of Russ). The plants were still blooming and we actually note another one still in bud.

This species is differentiated from the *P. racemosa* species by its narrow sepals, solid lip (no hole), creamy brown texture for color, lack of striping in the lip, and angle (between 45 and 90 degrees) of the flower on the rachis (Fig. 2, following page). For those unfamiliar with these two species, the flowers of *P. racemosa* all face upward parallel to the stem and its lip has green veining and a small hole at the base. The plants we found are growing on the mossy walls within the sinkhole and extend the flower raceme up out of each sinkhole by two to four inches. The sinkholes range in size and depth, but are typically two to three feet deep and one to three feet in diameter. The rock formation is known as the Miami Oolite.

The genus name, *Ponthieva*, was given by Robert Brown honoring Henri de

Ponthieu, a 19th century French merchant on the Antilles. Originally applied as a varietal name, *brittonae* was given in honor of Lady Britton, the wife of Englishman Lord Britton, a 19th century supporter of science. Ames (1910) raised it to species status. Although it was relegated by Luer (1972) to being only a variety, Sauleda and Adams (1980) restored it to the status of being a species in its own right. Common names cited for *P. racemosa* include Shadow-witch, Many-flowered Ponthieva, Glandular Ponthieva, and Glandular Neottia (Correll, 1950, reprinted 1978). The publication by McCartney (1997) is the only place *Ponthieva brittonae is referred to* as "Mrs. Britton's Shadow Witch."

Fig. 2. *Ponthieva brittonae* Ames, inflorescence.

It was an amazing weekend! After spending time in the Fakahatchee Strand State Park (FSSP) for the recently discovered *Cranichis muscosa* Swartz on February 6, and then taking the leisurely two mile walk to the pine glades near Wright's Hammock, it was a trip well worth its build up. These discoveries give us cause to speculate that it is likely only a matter of time before our diligent friends of southern Florida find the other lost orchids of the Everglades and FSSP—*Pelexia adnata, Cyclopogon elatus, Bulbyphyllum pachyrhachis, and Epidendrum acunae*.

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# TRIP TO TOBERMORY FOR THE BRUCE PENINSULA ORCHID FESTIVAL-MAY 30-JUNE 2, 2003

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**Friday May 30/03:** Peggy, John, Eugene and I flew to Hamilton via Westjet. Our flight left 6:15AM and we arrived in Hamilton 9:31AM local time.(They are one hour ahead of us). We picked up a Ford Taurus John had rented from Hertz and at 10:15Am set off for the Bruce. We tried to follow Hwy.6N but promptly got lost. Apparently Ontario doesn't believe in large, clear signage (at least for our eyes). The car had an onboard GPS, but no instructions came with it. However, Peggy got it working so it would tell us our location and the direction we were heading which was helpful. Unfortunately they had not left instructions with it so we couldn't really use the "go to" features properly. When we got near Guelph we began to see some dame's rocket blooming in the ditch and the dried seed heads of last years teasel (*Dipsacus sylvestris*) and Queen Anne's lace (*Daucus carota*). It took us so long to get through Guelph. They make you drive right through town and so slowly. We stopped and had lunch at some sort of bar-and-grill and carried on. Around Alvany about 3 kms. south of the Shenstone Motor Inn on the east side of 6N we saw a ski trail going into the bush with many gorgeous large flowered trillium(*T. grandiflorum*) in bloom (Fig. 1). This is Ontario's provincial flower and it's a real beauty with its large white flowers that turn pink when they get old. There we also saw trout lily (*Erythromion americanum*) plants with their green and mottled brown leaves. They had already finished blooming and each had a large seed pod. They were growing in a hardwood forest made up of beech, maple, and birch. We stopped at Wiarton (the home of Wiarton Willy, the groundhog that predicts spring) and bought some groceries and liquid refreshments.

Fig. 1. *Trillium grandiflorum*. Large-flowered trillium. (The provincial flower of Ontario)
Photo: Eugene Reimer Alvany, Ontario, Canada.

We arrived at Dyer's Bay on Georgian Bay where we had rented a cottage called "The Big Kahuna." The cottage was very large with a Franklin fireplace, another wood stove, electric heat, five beds and other furniture. It was right on Georgian Bay. All dishes and appliances were included, and we were very comfortable. All this was priced at $100 per night in the off- season, and the

cottages are very close to one of the Alvar formations with lots of the rare lakeside daisy and dwarf lake iris. The weather was getting cold and it had started to rain. A nice couple called Ken and Marilyn Finucan own the place on a large amount of property. They also have a maple syrup farm. He is a sculptor and she makes fancy candles and all kinds of crafts. Their website is http://www.northbruce.cck.ca/cottage4rent/dyersbay.htm Their phone number is 1-519-795-7395. Their e-mail address is sculptor@amtelecom.ca

We drove to Tobermory for supper and on the way saw a black bear, a raccoon, rose breasted grosbeaks, goldfinches, chipping sparrows, raven and turkey vultures. There are also lots of tame goats, cows and horses. When we came home we made up our beds. Eugene slept in the glassed- in porch, John had a bedroom with one bed and Peg and I shared a room with two beds and there was still another double pull-out sofa bed in the living room we could have used. We lit the fireplace and turned on the heat because by this time the weather was cold and rainy with a stiff wind from the northwest. The lake was choppy and steel grey. The day before it had been 28°C. in Winnipeg so it was kind of a shock. I knew it was cold there because I had checked the forecast for Tobermory before leaving on the web but it was still kind of surprising. There were lots of Ring-billed gulls around. We did our journaling and went to sleep.

**Saturday, May 31/03:** We drove to Singing Sands on Dorcas Bay, arriving 8AM. The weather was very cold, windy and raining. I was wearing two shirts and a rubber slicker with a hood and was still very cold. We stood around for about an hour until 9AM and set off in two groups in kind of a car caravan. They didn't make any attempt to reduce the number of cars nor did they have a bus but took about 30 people in each group with about 2 dozen cars. Pretty hard on the environment I would think. Jack Valentine the Parks Canada naturalist and Ethan Meleg the festival coordinator wee both there. They said they are having a lot of trouble with people digging up plants and huge amounts of people coming in the summer and not staying on the trails. I wonder why they don't make an effort to take smaller groups in a bus to lessen the impact. There were several professional photographers there, one called Willy Waterton I remembered in particular because his name seemed so close to Wiarton Willie, the famous groundhog! Jack mentioned that the Bruce Peninsula has the largest number of orchid species in North America (44) north of Florida. I was unaware of this (ed. note: actually, this title is held by North Carolina, with over 70 species, and Texas, with 52 species and two varieties, is third). He also explained the name Singing Sands. Apparently on some windy days the sand blows over the dunes and makes a steady hum. It wasn't doing that this day because things were far too wet. We looked at the "fern wall" first. This little cliff had a number of interesting ferns growing in the cracks. I saw sensitive fern (*Onoclea sensibilis*), fragile fern (*Sistopterus fragilis*), slender cliff-brake (*Cryptogramia stellar*), and maidenhair spleenwort (*Asplenium trichomones*). Bulblet fern (*Sistopteris bulbifera*) with its red stem was present as well.

Next we went to The Crane River Trail and saw jack-in-the-pulpit (*Arisamea triphyllum*), purple virgin's bower (*Clematis virginiana*) as well as ostrich fern

(*Matteuccia struthiopterus*) and more sensitive fern. The leaves of the large leaved aster (*A. macrophyllus*), an invasive species were everywhere. Apparently they have trouble with the many non-indigenous plants that have moved there over time. There is even a variety of small snail that is getting out of control. As a result the number of species found on the Bruce Peninsula is huge around 800, I think Jack said. We saw striped coral root (*Corallorhiza striata*) just coming up but it was small and very few were in bloom (Fig. 2).

Fig. 2. *Corallorhiza striata* Lindley. Striped Coral Root. Photo: E. Reimer.

Next we went on the Cyprus Lake Trail and saw early coral root (*Corallorhiza trifida* var. *flavida*) and small yellow lady's-slipper (*C. parviflorum*) and ram's head lady's-slipper (*C. arietinum*). We went back to the cottage for hot soup and a sandwich and more clothes! I also brought a pack with some field guides, extra water and my binoculars etc. What a mistake! The next outing was to be a hike along the Niagara Escarpment to see the old growth eastern cedar trees. I asked about the level of difficulty and the young guy there told me it was easy to moderate. Well it wasn't for me, with a pack, no hiking boots and no walking stick!. It's uphill over loose rock for a long way and the weather was windy as well. The Parks Canada guide, a nice young lady called Julia, carried my pack halfway and the others gave me there hands over the rough spots or I wouldn't have made it. Most other people who were old or fat or both turned back at one place but I carried on having come that far and was glad I did. There were eastern cedar trees growing way up near the top of the cliff in cracks. We saw "bonsaied" tree that was 500 years old and only about two feet tall. The view from the cliffs is wonderful, the underwater grottos and caves and secret passages are amazing. We saw a sinkhole near Horse Lake were the water is sucked down into the holes in the karst formation and comes up again at Marr Lake. The whole area is made of dolomite ($MgCaCO_3$) which is easily hollowed out by water. The surface is covered with old glacial striations in places and also round holes called pitkarren. Lake Huron and Georgian Bay are connected by an underwater passage that you can scuba dive through. These geological details were newly discovered in 1998 by a seismic survey which is ongoing. We found blooming birdseye primrose (*Primula laurentiana*) and dwarf Canadian primrose (*P. mistassinica*) on those rocks on the cliff. On the trail back we saw more early coral root, morel mushrooms and

Menzies Rattlesnake Plantain (*Goodyeara oblongifolia*). We recognized it by its leaves because, of course, it is not blooming yet.

We came back to the cottage, changed, had supper and went to the Tobermory Community Centre for wine and cheese and a slide show by Michael Runtz. He is a former Parks Canada naturalist who is a wonderful photographer and an amusing speaker. He spoke about the amazing pollination mechanisms that plants employ. He has a new coffee table type book out called Beauty and the Beast-The wondrous world of wildflowers. He also has a T.V. show called "Wild by Nature" on the Discovery Channel. We had come the farthest to attend this festival, but there were people there from Schenectady, New York too. We met Don Brough from the Southern Ontario Tourist Bureau and he was very glad to see us. He said tourism is really suffering with the SARS outbreak and the cold weather this spring. he also showed slides of some animals among them the Eastern Canadian Wolf and Moose. He says the moose eat waterliles for the salts in them. We saw a cormorant on the way back home that evening. I was really tired and we went to bed early.

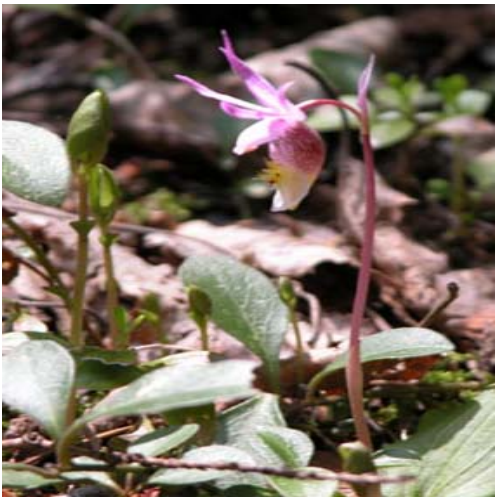

Fig. 3. *Calypso bulbosa* (L.) Oakes v. Americana Luer. The Fairy Slipper. Photo: Eugene Reimer.

**Sunday, June1,2003:** The next morning John went to take a photography course with Willie Waterton and others at Dorcas Bay but the rest of us slept in a bit. When he came back we had lunch and set off for Tobermory to take the boat to Flowerpot Island. The weather had improved. It was sunny and perhaps 17°C. The lake was still a bit choppy, but then it usually is. The water was a lovely milky green. We bought tickets on the Seawview III and left for the island at 1PM. The boat was 50 feet long and 40 tons. The captain let me steer it a bit. The first thing we did was go to see the sunken ships in Fathom 5, Canada's first National Marine Park. There are 23 old, sunken ships down there and the water is so clear you can see them as you go over them. There was an old 2 masted schooner from 1895 called the "Sweepstakes." I guess its number came up alright. There was another called "The City of Grand Rapids" that went down in 1900. We then headed for the island but before we got there we had to transfer in mid-lake to a 12 man Zodiac rubber boat. I was never on a Zodiac before and found it pretty exciting, especially transferring between the two. We went on the Marl Lake trail to see orchids because we hadn't got time to see the lighthouse as well. We saw *Calypso bulbosa* (Fig. 3) in bloom along

the trails, heart leaved twayblade (*Listera cordata*), Menzies Rattlesnake Plantain (*Goodyeara oblongifolia*) and dwarf rattlesnake plantain (*G. repens*). We also saw American fly honeysuckle (*Lonicera canadensis*), early coral root (the var. *flavida*) and C. *maculata*. We saw a Swainson's Thrush on the trail and a black spotted northern Water Snake on the rocks.

Fig. 4. *Iris lacustris* The Dwarf Lake Iris.
Photo: E. Reimer Emmett Lake area, Ontario.

They were late picking us up and we didn't get back to Tobermory until around 4PM. On the way home we stopped at the Emmett Lake Alvar formation. Alvars are areas of thin soil over limestone and are home to many rare plants among them the rare lakeside daisy (*Hymenoxys acaulis* var. *glabra*) also known as rubberweed. They didn't tell us why its called rubberweed but the leaves feel like they are made out of rubber. The blackflies were horrible as there was standing water with a high pH and it was around 5PM by this time. The Emmett Lake site is 2.9 kms. east on Hwy 6N. The road goes further past this but no need to go. Then we went to another Alvar Formation that Ethan had told Peg and I about. It was only about 300 meters north of the Dyers Bay road on 6N. east side. There is a sign almost covered by trees. You walk in on the trail and there are thousands of lakeside daisies as well as the very rare *Iris lacustris,* the dwarf lake iris (Fig. 4). They have lots of boardwalks there. The iris is very rare and only found on the shores of Lake Huron and Lake Michigan. The iris is so pretty; purple with yellow and white patches and only about 3 inches high.

There was no standing water and subsequently no blackflies there. We had supper at the Rocky Raccoon restaurant at Dyers Bay. The people there are from Nepal and serve Indian food. Later we had a marshmallow roast on the beach,. The men made a beautiful fire and there were no bugs. We went to bed late with plans to leave by 11AM. The only time we ran into bothersome insects was those black flies on the alvar formation and a certain flying ant that found its way somehow into John's pyjamas and delivered a painful bite on a particular place. We only know this because we heard him scream. He never did produce the ant's body.

**Monday, June2/03:** We got up at 8AM and made pancakes and bacon for breakfast. After a leisurely breakfast we fed the ring-billed gulls off the deck and enjoyed the view of the lake on that lovely sunny day. A herring gull came and landed on the deck to get food, and then he couldn't figure out how to fly up and leave. For the longest time. he kept trying to go between the bars of the

deck railing. The ring-billed gulls stood around and laughed at him. Finally he made it, and we packed up and left by 11AM. We decided to take the scenic drive to Cabot Head to see the lighthouse there. The others climbed it but my knees were sore and I talked to the volunteer lighthouse keeper instead. He said he gets to stay in the house there for the whole summer free if he shows people around. He shares this job with another man. The lighthouse was very old and had been restored completely. There is now an electronic beacon on the site as well. We then set off for Hamilton and didn't get lost this time. However, John embarked on a frantic search for a present for his wife. This apparently had not occurred to him when we were staying in a place where there was a craft or gift shop every half-block. Unfortunately Monday seems to be a day off in southern Ontario and one after another of the gift shops we stopped at were closed.

Fig. 5. *Cypripedium parviflorum* var. makasin. The Bruce Penninsula, Ontario, Canada. photo: Eugene Reimer.

We stopped to have lunch in Carlyle at a place called the Texas Grill. Never again! It turned out to be a biker place. There were Harley Davidson motorcycles parked outside. We sat down and I asked for the coleslaw on the menu. The waitress said it was not available because the cook put in too much pepper and people didn't like it. So we asked why he didn't just put in less pepper and leave it on the menu. She seems shocked as if this couldn't possibly be an option. We ordered something else and I guess she must have told him, because the cook, a large and beefy man, heavily tattooed, peered out of the kitchen with a large shiny knife in his hand. We never asked any more questions after that. The food tasted funny and it didn't seem to be cooked properly, and John suddenly felt nauseated. I developed cramps but when I tried to use the washroom there was a large biker man there using the washroom with the door wide open! I left hastily. We made it back to Hamilton and waited for our plane, never straying too far from the washrooms.

John finally found a present for his wife.

We arrived home about 10PM Winnipeg time. I had a great time and the cost was very reasonable because we shared the main expenses. All in all we saw nine species of orchid (all except two in bloom) as follows: *Calypso bulbosa*, *Corallorhiza trifida*, *Corallorhiza maculata*, *Corallorhiza striata*, *Cypripedium arietinum*, *Cypripedium parviflorum*, *Goodyera repens*, *Goodyera oblongifolia,* and *Listera cordata*.

# A FEW LATE WORDS FROM THE PRESIDENT

David McAdoo
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Item One:

I wanted to share some great news with you! We have recently received a letter from the IRS and have been granted tax-exempt status under section 50(c)(3) of the U. S. Federal Internal Revenue Code. Our status has been made effective as of 21 March, 2003, which was the date of our incorporation in North Carolina. This means that the US speakers who supported us at the conference in Ontario last year will be able to deduct their conference expenses as a contribution.

Because we are a new organization, we have been given provisional status until 31 December, 2007. At that time we will be required to resubmit routine updated information. For now, we have much more reading to do to make certain we understand all the ramifications of this status, and-as a result--our treasurer, Mark Rose, has ordered a load of documents.

Would anybody care to do some reading in the exciting U.S. tax code?

Item Two:

The other news is that the 2004 conference will be held at the Coastal Carolina University in Conway, South Carolina. The campus, located about ten miles west of Myrtle Beach, SC, has a great presentation hall. They do not offer dorm rooms as did McMaster University, but hotels and motels are abundant along the road from Myrtle Beach to the university area in Conway.

Our plan is to hold meetings on Saturday 07 and Monday 09 August, with field trips on Sunday the 8th and Tuesday the 10th. An optional field trip is being worked on for Wednesday the 11th,...this one to the mountains!

Several speakers have already committed, but with the dates now set, we will be able to go after others as well. If any or you have individuals you would like to have speak, please let me know their names and provide me with contact information.

Respectfully,

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Email: ncorchid@yahoo.com

*Cranichis muscosa* Swartz. Prodr. Veg. Ind. Occid. **8**: 120. 1788.