

INDEX SEMINUM 2016



DENVER BOTANIC
GARDENS

In 2016, Denver Botanic Gardens unveiled three new gardens including an expanded area for the Sensory Garden and horticulture therapy programming, an All-America Selections Garden and the Steppe Garden. The Steppe Garden displays plants from the steppe regions of Patagonia, Central Asia, South Africa and central North America. The Gardens has dedicated research and plant exploration to these steppe regions over the past three decades and many plants from these areas are now staples in American horticulture. As steppe plants are one of our core collections, we are excited to have a space dedicated to the plants of these important regions of the world, which includes flora from our own region. This year's *Index Seminum* focuses on plants native to Colorado and the western United States, many of which are found in the steppe.

GARDENS NAVIGATOR

We invite you to learn more about the selections provided through this year's *Index Seminum* through our Gardens Navigator website. Species names are linked to images, phenology data and plant descriptions throughout this catalog.

Seeds from cultivated plants collected by Katy Wieczorek. Seed requests fulfilled and data tracked by Denver Botanic Gardens volunteers Barry Levene and Gary Waggoner.

SEED OF CULTIVATED PLANTS

All plant names are linked to descriptions and in many cases, to images on Gardens Navigator website at www.gardensnavigator.org.

→ Indicates seed collected from an accession with known wild origin; original collection data follows.

ORDER #	FAMILY/NAME	LINEAGE #	PLANT SOURCE
AMARYLLIDACEAE			
1	<i>Allium cyaneum</i> Regel	801965	
2	<i>Allium geyeri</i> S. Watson	131264	
ASTERACEAE			
3	<i>Erigeron elatior</i> (A. Gray) Greene	040309	
4	<i>Erigeron simplex</i> Greene	040313	
5	<i>Erigeron speciosus</i> (Lindl.) DC.	002520	
6	<i>Liatris ligulistylis</i> (Nels.) C.B. Lehm.	140947	
→	7 <i>Liatris punctata</i> Hook.	870079	US: Colorado: Jefferson County: Green Mountain. Brune, R. s.n.
→	8 <i>Pyrrocoma crocea</i> (A. Gray) Greene	080977	US: Colorado: Routt County: N of Columbine along Forest Rd #500. Seasonal moist areas. 8600 ft. Kintgen, Mike s.n. 5 Aug 2007.
9	<i>Townsendia eximia</i> A. Gray	120952	
10	<i>Townsendia rothrockii</i> A. Gray ex Rothr.	081114	
11	<i>Zinnia grandiflora</i> Nutt.	861674	
BERBERIDACEAE			
→	12 <i>Berberis fremontii</i> Torr.	842391	US: Colorado: Delta County: Delta. Weinstein, G. s.n.
BRASSICACEAE			
13	<i>Degenia velebitica</i> (Degen) Hayek	070128 081769 130017	
CAPRIFOLIACEAE			
14	<i>Symphoricarpos occidentalis</i> Hook.	080276	
COMMELINACEAE			
15	<i>Tradescantia occidentalis</i> (Britton) Smyth	002513	
FABACEAE			
16	<i>Thermopsis montana</i> Nutt.	002538	
GENTIANACEAE			
→	17 <i>Eustoma grandiflorum</i> (Raf.) Shinn.	010145	US: Colorado: Adams County: Rocky Mountain Arsenal. Grant, Tom s.n.
IRIDACEAE			
18	<i>Iris missouriensis</i> Nutt.	003188	
LAMIACEAE			
19	<i>Salvia azurea</i> Michx. ex Lam. 'Nekan'	161576	
20	<i>Salvia dorrii</i> (Kellogg) Abrams	991021	
21	<i>Salvia engelmannii</i> A. Gray	132135	
→	22 <i>Salvia pachyphylla</i> Epling ex Munz	990350	US: California. Alplains s.n.

SEED OF CULTIVATED PLANTS

ORDER #	FAMILY/NAME	LINEAGE #	PLANT SOURCE
LINACEAE			
23	<i>Linum lewisii</i> Pursh	002527	
NYCTAGINACEAE			
24	<i>Mirabilis multiflora</i> (Torr.) A. Gray var. <i>glandulosa</i> (Standl.) J.F. Macbr.	002508	
OLEACEAE			
25	<i>Forestiera neomexicana</i> A. Gray	080259	
PLANTAGINACEAE			
→ 26	<i>Penstemon angustifolius</i> Nutt. ex Pursh. var. <i>caudatus</i> (Heller) Rydb.	980055	US: Colorado: Pueblo County. Kelaidis, Panayoti s.n. 15 Aug 1994.
27	<i>Penstemon crandallii</i> A. Nelson	111531	
28	<i>Penstemon cyananthus</i> Hook.	072728	
29	<i>Penstemon grandiflorus</i> Nutt. 'P010S' PRAIRIE JEWEL	032389 002509	
30	<i>Penstemon hallii</i> A. Gray	140952	
31	<i>Penstemon laricifolius</i> Hook. & Arn. ssp. <i>laricifolius</i>	050982	
32	<i>Penstemon linarioides</i> A. Gray ssp. <i>coloradoensis</i> (A. Nels.) Keck	161573	
33	<i>Penstemon nitidus</i> Douglas ex Benth.	071192	
34	<i>Penstemon pinifolius</i> Greene	101133	
35	<i>Penstemon procerus</i> Douglas ex Graham var. <i>formosus</i> (A. Nels.) Cronq.	140954	
36	<i>Penstemon pseudospectabilis</i> M.E. Jones	163657	
37	<i>Penstemon serrulatus</i> Menz. ex Sm.	113196	
38	<i>Penstemon strictus</i> Benth.	163658	
PLUMBAGINACEAE			
39	<i>Acantholimon armenum</i> Boiss. & Huet	941400	
→ 40	<i>Acantholimon caryophyllaceum</i> Boiss.	910852	TR: Kaon Shahat Mts. 2900 m. Plestl, V. PK3589.
41	<i>Acantholimon hohenackeri</i> (Jaub. & Spach) Boiss.	941402	
42	<i>Acantholimon huetii</i> Boiss.	081565	
43	<i>Acantholimon kotschyi</i> (Jaub. & Spach.) Boiss. var. <i>kotschyi</i>	980299	
POACEAE			
→ 44	<i>Aristida purpurea</i> Nutt.	861668	US: Colorado: Pueblo County.
→ 45	<i>Sporobolus airoides</i> (Torr.) Torr.	980155	US: Colorado. Southwest Seed 05401.
POLYGONACEAE			
46	<i>Eriogonum jamesii</i> Benth.	002714	
→ 47	<i>Eriogonum umbellatum</i> Torr. var. <i>aureum</i> (Gandog.) Reveal	060014	US: Wyoming: Albany County: Field W of fire station in Centennial, WY. 8000 ft. Kintgen, Mike s.n. 31 Jul 2005.

SEED OF CULTIVATED PLANTS

ORDER #	FAMILY/NAME	LINEAGE #	PLANT SOURCE
RANUNCULACEAE			
48	<i>Aquilegia alpina</i> L.	130407	
→ 49	<i>Aquilegia caerulea</i> E. James	100015	US: Colorado: Routt County: Wild Flower Ranch. Moist aspen grove. 8200 ft. Kintgen, Mike s.n. 16 Aug 2009.
50	<i>Aquilegia saximontana</i> Rydb.	021951	
→ 51	<i>Clematis fremontii</i> S. Wats.	132652	US: Kansas: Lincoln County?. s.n. 1 Jul 2011.
ROSACEAE			
52	<i>Potentilla fissa</i> Nutt.	950058	
→ 53	<i>Prunus pumila</i> L. var. <i>besseyi</i> (Bailey) Gleason 'P011S' PAWNEE BUTTES	832877	US: Colorado: Weld County: Pawnee National Grassland. Kelaidis/Borland s.n.
54	<i>Purshia mexicana</i> (D.Don) Henrickson	030263	
SAXIFRAGACEAE			
55	<i>Heuchera hallii</i> A. Gray	003024 110419	
56	<i>Telesonix jamesii</i> (Torr.) Raf.	140970	



WILD COLLECTED SEEDS

ORDER #	FAMILY/NAME	LINEAGE #	WILD DATA
APIACEAE			
57	<u><i>Heracleum maximum</i></u> W. Bartram	170487	United States: Colorado: Routt County: 1 mile west of Steamboat Lake in the Mill Creek Valley, privately owned 35-acre parcel of intact ecosystem adjoining Routt National Forest. Slope. <i>Artemisia cana</i> , <i>Delphinium glaucum</i> . ca 8250 ft. 40°47'N, 106°59'W. Kintgen, Mike s.n. 1 Jul 2016.
ASTERACEAE			
58	<u><i>Artemisia cana</i></u> Pursh	170483	United States: Colorado: Routt County: 1 mile west of Steamboat Lake in the Mill Creek Valley, privately owned 35-acre parcel of intact ecosystem adjoining Routt National Forest. Meadow. <i>Wyethia</i> , <i>Lupinus</i> , <i>Galium</i> , <i>Valeriana</i> . ca 8250 ft. 40°47'N, 106°59'W. Kintgen, Mike s.n. 1 Jul 2016.
59	<u><i>Artemisia dracunculus</i></u> L.	170484	United States: Colorado: Routt County: 1 mile west of Steamboat Lake in the Mill Creek Valley, privately owned 35-acre parcel of intact ecosystem adjoining Routt National Forest. <i>Symphoricarpos</i> , <i>Vigueria</i> , <i>Helianthus</i> . ca 8250 ft. 40°47'N, 106°59'W. Kintgen, Mike s.n. 1 Jul 2016.
60	<u><i>Erigeron elatior</i></u> (A. Gray) Greene	170482	United States: Colorado: Routt County: 1 mile west of Steamboat Lake in the Mill Creek Valley, privately owned 35-acre parcel of intact ecosystem adjoining Routt National Forest. Meadow. <i>Lupinus</i> , <i>Helenium</i> , <i>Arnica</i> , <i>Potentilla</i> . ca 8250 ft. 40°47'N, 106°59'W. Kintgen, Mike s.n.
61	<u><i>Hymenoxys hoopesii</i></u> (A.Gray) Bierner	170485	United States: Colorado: Routt County: 1 mile west of Steamboat Lake in the Mill Creek Valley, privately owned 35-acre parcel of intact ecosystem adjoining Routt National Forest. Meadow. <i>Lupinus</i> , <i>Arnica</i> , <i>Potentilla</i> . ca 8250 ft. 40°47'15"N, 106°59'36"W. Kintgen, Mike s.n. 1 Jul 2016.
MELANTHIACEAE			
62	<u><i>Veratrum tenuipetalum</i></u> A. Heller	170488	United States: Colorado: Routt County: 1 mile west of Steamboat Lake in the Mill Creek Valley, privately owned 35-acre parcel of intact ecosystem adjoining Routt National Forest. Meadow. <i>Lupinus</i> , <i>Helenium</i> , <i>Arnica</i> , <i>Potentilla</i> . ca 8250 ft. 40°47'15"N, 106°59'36"W. Kintgen, Mike s.n. 1 Jul 2016.
OROBANCHACEAE			
63	<u><i>Castilleja sulphurea</i></u> Rydb.	170481	United States: Colorado: Routt County: 1 mile west of Steamboat Lake in the Mill Creek Valley, privately owned 35-acre parcel of intact ecosystem adjoining Routt National Forest. Rich meadow. ca 8250 ft. 40°47'15"N, 106°59'36"W. Kintgen, Mike s.n.
64	<u><i>Pedicularis groenlandica</i></u> Retz.	170486	United States: Colorado: Routt County: 1 mile west of Steamboat Lake in the Mill Creek Valley, privately owned 35-acre parcel of intact ecosystem adjoining Routt National Forest. Moist sage meadow. <i>Castilleja miniata</i> . ca 8250 ft. 40°47'15"N, 106°59'36"W. Kintgen, Mike s.n. 1 Jul 2016.

WILD COLLECTED SEEDS

ORDER #	FAMILY/NAME	LINEAGE #	WILD DATA
POLEMONIACEAE			
65	<u><i>Collomia linearis</i> Nutt.</u>	170490	United States: Colorado: Routt County: 1 mile west of Steamboat Lake in the Mill Creek Valley, privately owned 35-acre parcel of intact ecosystem adjoining Routt National Forest. <i>Artemisia cana</i> , <i>Delphinium glaucum</i> . ca 8250 ft. 40°47'N, 106°59'W. Kintgen, Mike s.n. 1 Jul 2016.
POLYGONACEAE			
66	<u><i>Eriogonum umbellatum</i> Torr. var. <i>majus</i> Hook.</u>	170491	United States: Colorado: Routt County: 1 mile west of Steamboat Lake in the Mill Creek Valley, privately owned 35-acre parcel of intact ecosystem adjoining Routt National Forest. Slope. <i>Artemisia cana</i> , <i>Delphinium glaucum</i> . ca 8250 ft. 40°47'N, 106°59'W. Kintgen, Mike s.n. 1 Jul 2016.
RANUNCULACEAE			
67	<u><i>Delphinium nuttallianum</i> Pritz. ex Walp.</u>	170492	United States: Routt: Hinman Park Elk River Road. Meadow. Forest Service Permit 2016. Kintgen, Mike s.n. 1 Jul 2016.
ROSACEAE			
68	<u><i>Potentilla pulcherrima</i> Lehm.</u>	170489	United States: Colorado: Routt County: 1 mile west of Steamboat Lake in the Mill Creek Valley, privately owned 35-acre parcel of intact ecosystem adjoining Routt National Forest. Meadow. <i>Artemisia cana</i> , <i>Galium</i> , <i>Lupinus</i> , <i>Valeriana</i> . ca 8250 ft. 40°47'N, 106°59'W. Kintgen, Mike s.n. 1 Jul 2016.

GENERAL INFORMATION

Please note:

- Seeds of some species are in short supply and will be distributed in order of request.
- Seeds are the result of open pollination and may be hybridized.
- We give no warranty as to the quality, productiveness or any other matter for any seeds we supply.
- Species are chosen for their performance in Denver, Colorado's climate; we cannot speak to qualities such as invasiveness in other climates, but we request any data pertaining to invasiveness of these species in other region to be communicated to Denver Botanic Gardens for future reference. We will not knowingly distribute seed to places where a taxon has been identified as invasive.

SOURCES FOR NOMENCLATURE

Plant names and family arrangement are based on data found in The Plant List (theplantlist.org), The Flora of North America and Germplasm Resources Information Network (GRIN) (ars-grin.gov/).

ABOUT DENVER BOTANIC GARDENS

Denver Botanic Gardens is situated at Latitude 39°45'N, Longitude 104°52'W, at an elevation of 5,277 feet (1609 meters) above sea level. The Gardens includes 24 acres of display and collections including a tropical conservatory, rock alpine garden, Japanese garden, native plant gardens and water gardens.

CLIMATIC CONDITIONS IN DENVER (1971-2000)

AVERAGE PRECIPITATION

	JAN	FEB	MAR	APRIL	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC	ANNUAL
inches	0.47	0.47	1.26	1.73	2.28	1.69	2.05	2.05	1.06	1.06	0.83	0.59	15.54

2016 PRECIPITATION

	JAN	FEB	MAR	APRIL	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC	2016 ACTUAL
inches	0.35	0.93	2.50	0.41	2.84	1.95	0.70	1.55	0.05	0.10	0.70	0.79	12.87

AVERAGE HIGH TEMPS

	JAN	FEB	MAR	APRIL	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC	ANNUAL
° F	44	46	54	61	71	81	88	86	77	65	52	43	64.0

2016 MONTHLY HIGH TEMPS

	JAN	FEB	MAR	APRIL	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
° F	66	73	73.9	80.1	86	100.9	102.9	99	93.9	88	80.1	66

AVERAGE LOW TEMPS

	JAN	FEB	MAR	APRIL	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC	ANNUAL
° F	17	20	26	34	44	53	59	57	47	36	25	17	36.3

2016 MONTHLY LOW TEMPS

	JAN	FEB	MAR	APRIL	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
° F	3	3.9	12.9	24.1	27	48	55.9	68	41	30	15.1	-15

source: 2016 data source: U.S. climate data (Stapleton weather station) and Denver Botanic Gardens rain gauge

Historical data (1981-2010): U.S. climate data (<http://www.usclimatedata.com/climate/denver/colorado/united-states/usco0105>)

Lowest temperature recorded (1921-2011) -25° F/-3.9° C

Highest temperature recorded (1921-2011) 105° F/40.6° C