

PROPAGATION PROTOCOLS 2025

SacValley CNPS Native Plant Nursery Robin Rietz protocols started in 2007

							PROP METHOD						TREATMENT NOTES
Scientific name	Common name	*Life Form	Scar	Strat	Sow time	Germ time	Seed	Hard Cut	Soft Cut	Div	Pot size	Media	
<i>Achillea millefolium</i>	Yarrow	P	N	N	Sep Oct	10-14 d	Y			Y	SCF	S	Sow pinch (~10) seeds/cell. Cover very lightly.slow germ under 65°F
<i>Acmispon glaber</i>	California broom	P	180 °F soak		Feb Mar	6-14d	Y					S	liberal amounts of seed, low germ rate?
<i>Adiantum jordanii</i>	Maidenhair fern	F								Y			Spores OK too, dry 1-2 days until capsules splits
<i>Aesculus californica</i>	California buckeye	T	N	N	Oct Nov	120d	Y				T4	R	1/2 covered fresh seed, protect w/ flat against predation.
<i>Anemopsis californica</i>	Yerba mansa	P				90d				Y			Germinates 100°F during summer, keep moist
<i>Apocynum cannabinum</i>	Indian hemp	P			war m	21d				Y			Divisions during dormant period, winter. Seed viability low after 1yr
<i>Boechera sparsiflora</i>	Elegant rockcress	P					Y						Sow in fall
<i>Arctostaphylos viscida</i>	Whiteleaf manzanita	P			Dec	60d to 1yr	diffi cult		Y	Y	4"	C	Greenwood cuttings, new growth early winter (Nov-Dec)
<i>Aristolochia californica</i>	California pipe vine	P	H2O soak up to 1 wk	2-3 mo c/w	Nov	30 d to 1yr	Y		Y	Laye ring		R	Soak seed in water for 1-3 days, cold stratify may help, but keep moist, spring germination (needs warmth)
<i>Artemisia douglasiana</i>	California mugwort	Y							Y	Y			Easiest by division
<i>Asclepias cordifolia</i>	Purple milkweed	P	Imbi be	3-6 wks c/w	Oct		y			N	2x5	50/50 reg/cactus	Poor success, Germ rates good same treatment for other milkweeds, but doesn't seem to tolerate regular summer water.

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<i>Asclepias fascicularis</i>	Narrowleaf milkweed	P	Imbibe	Y	July & Feb	Any	Y			Y	2x5	R	Imbibe in water for 1-2 days before sowing, sow in Feb-Mar or fall, will germ most times of the year
<i>Asclepias speciosa</i>	Showy milkweed	P	Imbibe	Y	July & Feb	warm	Y			Y	2x5	R	Soak seed in water for 1-2 days and sow in Feb-Mar in 2x2x5 or stubby cells. Germinates with warmth
<i>Baccharis pilularis</i>	Coyote brush	P			Any time		Y		Y		Flat		1/8" cover. Transplant to liners. cuttings dip rooting hormone also fairly easy.
<i>Baccharis salicifolia</i>	Mulefat	P			Dec			Y				C	Dec cuttings treated as hardwood cuttings root easily.
<i>Brickellia californica</i>	California Brickellbrush	P			Oct	6 wk-3mo, low germ	Y				Flat	S	Sow seeds in flat, no treatment. Germination rate may be poor, so use lots of seed.
<i>Brodiaea californica</i>	California brodiaea	B			See d& Bulb Oct	2-4 wks	Y				See d 4" 2 nd yr 4" 3 rd dee pFlat	R	~100 seeds per 4". Cover seeds with 1/8" of vermiculite. Fertilize mid-winter w/ fish emulsion. Allow summer dormancy, let pots/flats dry totally starting in mid-May to June. Harvest bulbs and re-sow about 25/4" 2nd year. In 3rd year transfer 50-100 each Anderson flat. Fertilize flats in Jan-Feb with osmocote or granular fertilizer. Harvest bulbs late summer. Sell or re-sow in Oct, depending on size.
<i>Brodiaea elegans</i>	Elegant brodiaea	B			Oct		Y					R	See Brodiaea californica for general bulb propagation.

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<i>Calandrinia ciliata</i>	Redmaids	A			Oct Jan		Y				SCF to 4"	S	10 seeds per cell, barely covered in seedling mix.
<i>Calocedrus decurrens</i>	Incense Cedar	T	Imbi be	2mo c/w									Haven't tried this yet.
<i>Calochortus albus</i>	Fairy Lantern	B			Oct		Y						See Brodiaea californica for general bulb propagation.
<i>Calochortus luteus</i>	Mariposa Lily	B			Oct		Y						" *true bulbs more prone to rotting, maybe better draining soil, try bulb cuttings
<i>Calycanthus occidentalis</i>	Western Spicebush	S	Imbi be	3-4 mo c/w	Dec	2-4 wks	Y	Dec				Reg	Green seeds sow immediately- germ 3 weeks
<i>Carex barbarae</i>	Santa Barbara Sedge	P			Jun	Low germ rate	Y			Y			Seeds need light/heat to germinate, start June. Sow in plug flats, many seeds per cell.
<i>Carex pansa</i>	Meadow Sedge	P	N		May Jun		Y			Y			Division in spring, replant immediately. Seeds need heat to germinate, sow in May-June
<i>Carex praegracilis</i>	Clustered field sedge	P	N		May Jun		Y			Y			Division in spring, replant immediately. Seeds need heat to germinate, sow in May-June.
<i>Castilleja foliolosa</i>	Indian paintbrush	P	N	N	Sep Oct	30-120d germ >65°F	Y					S	Hemi-parasitic, sow with supporting species. We have used either Koeleria micrantha or Diplacus aurantiacus with good result. Start in fall, pinch of each species per cell in seedling mix. Coyote bush/wooly sunflower, melica torreyanna

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<i>Ceanothus cuneatus</i>	Buck brush	S	Hot h2o 24hr	2-3 mo c/w		14 – 60 d	Y					Low lime	Use mesh bags to collect late spring, seeds last up to 15 yrs, sow 1" deep
<i>Cephalanthus occidentalis</i>	Buttonbush, buttonwillow	S	Hot h2o 24hr	N	Dec	30- 60 d low germ rate	Y	Y					Need light to germ, sow on surface. Easy to germinate. Easy from hardwood cuttings in Dec.
<i>Cercis occidentalis</i>	Western redbud	T	Hot h2o 24hr min	Y	Oct Nov	60- 120 d	Y				Flat	R	Soak seeds 24hrs in boiling water. Sow 2/2", stratify outdoors 2-3 months, or stratify in fridge and sow in flats in spring.
<i>Cercocarpus betuloides</i>	Mountain Mahogany	S	N	Y			Y						1-1.5 months cold stratification. Soak in water before chilling.
<i>Chlorogalum pomeridianum</i>	Soap plant	B	N	N			Y					R	See Brodiaea californica for general bulb treatment.
<i>Clarkia elegans</i>	Clarkia	A			Dec		Y				SCF-4"	S	Sow several seeds/cell in 1:1:1 seed mix in Dec. Grow in greenhouse, perfect for mid-Feb in 4" pots.
<i>Claytonia perfoliate</i>	Rooreh, Miner's Lettuce	A					Y				SCF-4"	S	Easy to grow from seed sown in fall, but hard to time for plant sale.
<i>Clematis lasiantha</i>	Pipestem clematis	V		Y	Feb-Mar		Y		Y				Seeds ripe mid-fall. Cold stratify for two months, sow in Feb-March in flat with seedling mix. Also grow easily from layering.
<i>Clematis ligusticifolia</i>	Virgin's bower	V		Y	Feb-mar		Y		Y				" Showiest
<i>Collinsia heterophylla</i>	Chinese Houses	A			Oct Jan		Y					S	Sow seeds Oct. Pinch back excess seedlings Perfect for mid-Feb in 4" pots.

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<i>Corylus cornuta</i> var. <i>californica</i>	California hazelnut	T			Oct		Y						60-120 days stratification
<i>Dichelostemma multiflora</i>	Foothill Ootow	B			Oct								See Brodiaea californica for general bulb treatment.
<i>Dichelostemma volubile</i>	Snake lily, Twining lily	B			Oct								" " " "
<i>Dryopteris arguta</i>	California Wood Fern	F					spores			Y			Also from spores, but tricky
<i>Dudleya cymosa</i>	Dudleya	P			Oct/Dec		Y						Sow seeds in Oct in flat with seedling mix. Transplant to 2" pots of succulent mix (50% reg potting mix, 50% commercial bagged cacti mix).
<i>Elymus glaucus</i>	Blue wildrye	P			Oct		Y						Sow seeds in cells with seedling mix.
<i>Elymus triticoides</i>	Creeping wildrye	P			Oct		Y						"
<i>Epilobium canum</i>	California fuchsia	P					Y		Y	Y			Greenwood cuttings root easily 3 weeks. Rapid growth to 1 gal in 1 year. Cuttings can be taken spring, summer or fall. Also grows well from seed.
<i>Erigeron foliosus</i>	Fleabane daisy	P			Fall		Y						Sow seed in cells with seedling mix.
<i>Eriodictyon californicum</i>	Yerba Santa	S					Y		Y	Y			So far, poor success except from division. Recommendation is to try from seed treated in oven 194F for 5 minutes or softwood cuttings in 10 parts perlite, 1 part peat.
<i>Eriogonum roseum</i>		A			Fall		Y						Sow in seedling mix in Jan-Feb
<i>Eriogonum nudum</i>	Nude Buckwheat	P			Fall		Y						Sow in seedling mix in Jan-Feb

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<i>Eriogonum wrightii</i>		P					Y						
<i>Eriophyllum lanatum</i>	Woolly sunflower	P			Oct	Variable	Y						Sow in seedling mix, give extra germ time, likes 60-90 days c/w strat
<i>Eschscholzia lobbiai</i>	Lobb's poppy	A			Jan		Y				SCF to 4"	S to R	Sow in seedling mix in fall
<i>Eschscholzia californica</i>	CA Poppy	A			Oct-Jan		Y						Seed by Oct in 1:1:1 seed mix, small cells. Ready mid-Fed in 4" pots or DP15.
<i>Festuca idahoensis</i>	Blue bunchgrass	G					Y						Sow in seedling mix in cells
<i>Fragaria vesca</i>	Wild strawberry	P			Fall					Y			Cut runners and plant in 4" pots in potting soil
<i>Frangula tomentella</i>	Hoary coffeeberry	S		Y	Jan	Germ 45 days	Y				Flat		Store clean seeds in dry fridge. Soak seeds hot water 24 hrs. Cold stratify 2-3 months. Sow seeds Jan in flats in greenhouse, germination in 45 days. Fresh seed w/o strat.
<i>Garrya (elliptica or congdonii)</i>	Silktassel	S											Have tried from stratified seed with poor success.
<i>Gilia capitata</i>	Globe gilia	A			Jan		Y						Sow seeds Oct-Dec in 1:1:1 seed mix, in greenhouse. Ready mid-Feb in 4" pots.
<i>Gilia tricolor</i>	Bird's-eye Gilia	A			Jan		Y						
<i>Glycyrrhiza lepidota</i>	American Licorice												
<i>Grindelia camporum</i>	Gum plant	P			Fall		Y						
<i>Helenium puberulum</i>	Sneezeweed	P			Fall		Y						

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<i>Heteromeles arbutifolia</i>	Toyon	S		Y			Y						Fresh seed may germinate without stratification, or cold stratify for 45-60 days after overnight soak in water. 2012 seeded Dec in 1:1:1 mix, transplanted to 2" Feb.
<i>Heterotheca grandiflora</i>	Telegraph Weed	A			Jan?		Y						Found along roads
<i>Heterotheca oregona</i>	Oregon false golden aster	P					Y						
<i>Heuchera maxima</i>	Alum Root	P			Any time		Y		Y				Also basal cuttings
<i>Heuchera micrantha</i>	Crevice alum root	P			any time	fast	Y			Y			In 2012 sowed seeds in cells 1:1:1 mix in Nov. Good germination but poor growth. Likes fertilizer and probably bumping up
<i>Hibiscus lasiocarpus</i>	Hibiscus	S			any time		Y						Sow early-mid spring outdoor bed or whenever in greenhouse. Germinates readily, soak in warm water 24hours to improve germ. Sow 2-3 seeds/2" in outdoor mix.
<i>Holocarpa virgata</i>	Tarweed						Y						
<i>Iris douglasiana</i>	Coastal Iris	R					Y			Y Nov	4" 1g	Reg	
<i>Iris hartwegii</i>	Hartweg's Iris	R					Y						
<i>Iris macrosiphon</i>	Long tubed Iris	R					Y						Needs good drainage, seedlings damp off, minimize late season water
<i>Juncus effusus</i>	Common rush	G					Y			Y			Moist stratification improves germ. Naturally germinates in moist soil, needs light to germ, over-winter on

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													soil surface, seedlings in spring. Best planted out in early spring.
<i>Keckiella breviflora</i>		S			Fall		Y						Soak seeds 3min physan or 5% bleach before sowing. Sow flats 1:1:1 mix germinate overwinter in 2-4 weeks. Transplant after 2 true leaves show.
<i>Koeleria macrantha</i>	Junegrass	G			Any time		Y						
<i>Lathyrus jepsonii</i>	Jepson pea	P											
<i>Layia platyglossa</i>	Tidy tips	A			Jan		Y						
<i>Lepechinia calycina</i>	Pitcher Sage	P	Y				Y		Y				Soak seeds 24hrs hot water, 3 months cold stratify. Little success 2011-12, collected 8/12 soaked and sown within 1 week of collection.
<i>Lessingia glandulifera</i>	Silver carpet aster	P							Y				
<i>Lilium pardalinum</i>	Leopard lily	B		Y			Y						
<i>Linun lewisii</i>	Blue Flax	P					Y						
<i>Lithophragma bolanderi</i>	Woodland Star	P											
<i>Lonicera hispidula</i>	California honeysuckle	V			Spring/fall		Y	Y vine eye	Y		4"	cuttings	Tip/softwood cuttings spring-fall. 4" cuttings mist, bottom heat, transplant to 4" pots. Dormant hardwood vine cuttings fall/winter.
<i>Lonicera interrupta</i>	Chaparral honeysuckle	V		Y	Aug		Y	Y vine eye	Y				Clean seeds, mash in sieve, remove pulp, dry. Soak 24hrs water, cold stratify in peat/perlite 1-3 months. Sow in Aug seed mix, transplant to

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													DP40. Prune at 2 months and fertilize.
<i>Lupinus albifrons</i>	Silver Bush lupine	S	Y		Oct		Y						Soak seeds hot water. Plant only imbibed seeds. Best result with nicked seeds sown in liners.
<i>Madia elegans</i>	Madia	A					Y						
<i>Marah fabaceus</i>	Wild Cucumber	V		3mo c/w	Jan		Y					Reg	
<i>Melica californica</i>	Onion Grass	G			Oct								
<i>Melica torreyana</i>	Torry's melicgrass	G			Oct	1 wk	Y						
<i>Mimulus aurantiacus</i>	Sticky monkeyflower	P				2-3wk		Y	Y				Cuttings in spring or fall. Usually roots in 3-6 weeks in standard cutting mix.
<i>Mimulus cardinalis</i>	Scarlet monkeyflower	P					Y						
<i>Mimulus guttatus</i>	Seep monkey flower	A/P			Nov Dec		Y						Tiny seeds, Sow Nov/Dec greenhouse small cells 1:1:1 mix. Transplant Jan to 4" ready for Feb sale.
<i>Monardella villosa</i>	Coyote mint	P				Oct	Y		Y				Cuttings root easily 3-6 weeks. Also easy from seed 1:1:1 mix cells or bowl, transplant to 2" after 2 true leaves.
<i>Muhlenbergia rigens</i>	Deer grass	G			Fall or spring		Y					SCF to 4" to G	Germinates below 70°F, cover 1/8" soil, light inhibits growth
<i>Nemophila menziesii</i>	Baby Blue Eyes	A					Y						Sow seeds Nov/Dec small cells, several seeds/cell in 1:1:1 mix.

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													Transplant to 4" early Jan, ready for sale Feb.
<i>Nicotiana attenuata</i>	Coyote tobacco	P											
<i>Oenothera elata hookeri</i>	Evening Primrose	P			Fall		Y						
<i>Pellaea andromedifolia</i>	Coffee Fern	F					spores			Y			
<i>Penstemon heterophyllus</i>	Foothill penstemon						Y						Sow seeds Oct small cells 1:1:1 mix. Germination at 1 month. Transplant to 4" by Feb. May need physan to avoid damping off.
<i>Pentagramma triangularis</i>	Goldback Fern	F					spores			Y			
<i>Phacelia bolanderii</i>	Coastal phacelia	P					Y						
<i>Phacelia imbricata</i>	Pine bee Phacelia	P			Fall		Y					R	
<i>Philadelphus lewisii</i>	Mock Orange			2mo c/w	Fall		y	Y Nov Dec	Y summer		Flats	Coarse sand medium	Fall sow outside in flats, or cold strat 8wks at 41F. Coarse sand medium. Softwood cuttings May-summer, hardwood cutting late fall, early winter.
<i>Phyla nodiflora</i>	Lippia	P			Nov		N			Y	4"	R	
<i>Pinus muricata</i>	Bishop Pine	T											
<i>Pinus sabiniana</i>	Foothill Pine	T											
<i>Ptelea crenulata</i>	Hoptree	T		Y			y						Stratify seeds 3 months.
<i>Quercus berberidifolia</i>	Scrub oak	T					y						Sow fresh acorns in Dpots, cover by 1" media

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<i>Quercus chrysolepis</i>	Canyon live oak	T			Oct		Y				DP	R	Sow fresh acorns sideways, cover w/1" media
<i>Quercus douglasii</i>	Blue oak	T			Oct		Y				DP	R	Sow fresh acorns in Dpots, cover by 1" media
<i>Quercus durata</i>	Leather Oak	T			Oct		Y				DP	R	Sow fresh acorns in Dpots, cover by 1" media
<i>Quercus kelloggii</i>	Black oak	T			Oct		Y				DP	R	Sow fresh acorns in Dpots, cover by 1" media
<i>Quercus lobata</i>	Valley oak	T			Oct		Y				DP	R	Sow fresh acorns in Dpots, cover by 1" media
<i>Quercus wislizenii</i>	Interior live oak	T			Oct		Y				DP	R	Sow fresh acorns in Dpots, cover by 1" media
<i>Quercus x morehus</i>	Oracle oak	T			Oct		Y				DP	R	Sow fresh acorns in Dpots, cover by 1" media
<i>Rhamnus ilicifolia</i>	Holly-leaf Redberry	S		Y	Nov		Y				DP 40	R	Soak seeds overnight. Cold stratify stored seed 60-75 days OR sow in fall & stratify outdoors in Nov. One seed/deepot 40 2x depth of seed standard potting mix.
<i>Rhus ovata</i>	Sugarbush												
<i>Rhus trilobata</i>	Skunkbush			Y			Y						Soak seeds overnight hot water. Cold stratify 2-3 months. Sow 1 tsp seed/flat.
<i>Rosa californica</i>	California wild rose								Y	Y			
<i>Rubus ursinus</i>	California blackberry							Y Dec	Y				Hardwood cutting Dec15-Jan 31, 1/8"x15" long. Dip in mild bleach 30 sec. Recut to 5", 4 nodes. Auto mist, bottom heat. Transplant 70 days to DP40. Softwood cuttings also good

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<i>Salix species</i>	Willow		N	N			Y		Y				Need light to germinate, sow on top of media, keep moist through germination
<i>Salvia sonomensis</i>	Creeping Sage	P					N		Y			R	Take soft wood cuttings in winter after roots have formed on runners
<i>Salvia spathacea</i>	Hummingbird sage	P					Y			Y		R	Fall rooted runners
<i>Sambucus nigra</i>	Blue elderberry	T			Spring or Fall		Y						Can be sown fall or stratify & sow spring. Greenhouse warm stratify 70-80 then sow close to soil surface in flats. Hundreds of seeds/flat. May not complete germination till spring. Good result 2-3 month stratification.
<i>Scrophularia californica</i>	Bee plant	P				14 days	Y						Treat seed with 5% bleach or 1% physan. Transplant DP16 14 days after germination. Fertilize with Nitricate NPK 13-13-13, 3 month after.
<i>Scutellaria californica</i>	California Skullcap	P			Nov				Y	Y	1g	reg	Divide 4-1g to 27G
<i>Sisyrinchium bellum</i>	Blue-eyed grass	P			Fall		Y						Sow in fall. No treatment.
<i>Solidago californica</i>	California goldenrod	P			Nov		Y			Y	4"	Reg	
<i>Sporobolus airoides</i>	Alkali sacaton	G					Y						
<i>Stipa pulchra</i>	Purple Needlegrass	G					Y						
<i>Styrax redivivus officinalis</i>	Snow drop bush	S					Y						Cold stratification 2 months. Sow DP16 or 2x2x6 regular potting soil

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<i>Symphoricarpos albus</i>	Snowberry	S						y					Hardwood cuttings in early Jan ready for transplant mid-April if not earlier.
<i>Symphyotrichum chilense</i>	California aster	P			Oct Nov	20 days	Y			Y	4"	Reg	transplant 14 days later. Division spring or fall, replant immediately
<i>Tauschia hartwegii</i>	Hartweg's Umbrellawort	P											Dormant late summer
<i>Trichostemma lanceolatum</i>	Vinegar Weed	A					Y						
<i>Triteleia ixioides</i>	Pretty Face	B					Y						See Brodiaea californica
<i>Tritelia laxa</i>	Ithuriel's spear	B					Y						"
<i>Umbellularia californica</i>	California bay	T	Y	Y		90 days	Y						Lightly crack seed before planting and/or cold stratify 90-120 days. Sow in 1:1 perlite/peat in 35-40 degrees. Transplant to T4
<i>Vitis californica</i>	California wild grape	V						Y Dec			4"	Reg	Hardwood cutting or vine-eye mid Dec. Transplant in May. Male/female plants. Seed prop yields unknown sex.
<i>Wyethia angustifolia</i>	Narrowleaf Mule ears	P	N	Y	May	30% in 45 days	Y				Flat tray	S	Cold stratify in fridge 3 months. in greenhouse May. Low germ rate. Transplant 45 days 40% survival.
<i>Additonal plants</i>													

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Key:

*Life Forms: Annual, Bulb, Fern, Grass forms, Perennial herb, Shrub, Tree, Vine

Media:

R=regular nursery potting mix custom mix by ready grow ordered in bulk|

S=seed sowing mix 1:1:1 perlite:peat:vermiculite

W= well draining mix 1:1 commercial cactus:regular

C=cuttings mix 3:1 perlite/peat

Pots:

T4- tree pot, 4x12"

F-Anderson Flat tray, 18x15x2.5"

DF-Anderson deep flat, 15x15x5"

4"-4x4x4 pot

2"-2x2x2 pot

G-1 gallon pot

SCF-seed cell flat-1x2" 200cell Anderson flats

2x5- 2x2x5 Anderson band

DP40- 2.7"x10"

Created by Alex Morton 2014, updated Julie Clements 2024-25 based on Robin Reitz protocols in practice at Sacramento Valley California Native Plant Society nursery at Soil Born Farms in Rancho Cordova, California