subalternans

Table S1. Information on seed (cypsela) dormancy for species of Asteraceae recorded according to life form in each vegetation zone on earth. The table numbers and titles (below) are the same as those in Baskin and Baskin (2014). Table number and title are omitted if the table was not related to seed dormancy and germination. Plant names were checked using the Plant List or the World of Plants Online. D, dark; g.h., greenhouse; L, light; ND, nondormant; nur., nursery; PD, physiological dormancy,

**Species Tribe ND/PD Temp. a  Light/dark References**

**Tropical and subtropical**

Table 9.1. Non-pioneer trees of evergreen rainforests

Table 9 .4. Pioneer trees of evergreen rainforests

Table 9.5 Shrubs in evergreen rain forests

Vernonia Vernonieae ND nur.? - Okafor, 1997

amygdalina

Table 9.6. Vines in evergreen rain forests

Mikania [sprucei](http://www.theplantlist.org/tpl1.1/record/gcc-8807) Eupatorieae ND room L>D Macedo, 1977

Table 9. 7. Herbs in evergreen rain forests

[Vernonanthura](http://www.theplantlist.org/tpl1.1/record/gcc-7086) Vernonieae ND room L>D Macedo, 1977

ferruginea

Table 9.8. Weedy species that invade regions where evergreen rainforests have been cut

Acmella oleracea Heliantheae ND 25, 30 L>D Oliveira & Innecco, 2012;

30/20 Sarmento et al., 2019

Ageratum conyzoides Eupatorieae ND nur. - Marks, 1983

15, 20, Wang et al., 2016;

25, 30 Yuan & Wen, 2018

Ageratum Eupatorieae PD 20, room L Lamsal et al., 2019

houstonian

Bidens pilosa Coreopsideae ND 27 - Marks & Nwachuku, 1986

Chromolaena odorata Eupatorieae PD 35/25 L Chauhan & Johnson, 2008a

Crassocephalum Senecioneae ND 20, 10, L Nakamura & Hossain,

crepidioides 20/15, 2009; Sakpere et al.,

18-28, 2013

15, 30 Yuan & Wen, 2018

[Cyanthillium](http://www.theplantlist.org/tpl1.1/record/gcc-12462) Vernonieae ND 27 - Marks & Nwachuku,

stelluliferum 1986

Emilia sonchifolia Senecioneae ND nur. - Marks, 1983

Synedrella nodiflora Heliantheae PD 30/20, L>D Chauhan & Johnson, 35/20, 2009b; Souza Filho & 25, 30 Takaki, 2011

Tithonia diversifolia Heliantheae PD room, L>D  Muoghalu & Chuba,

15 2005; Agboola et al.,

2006; Santos-Gally et al., 2019

Tithonia rotundifolia Heliantheae PD 25 L>D Upfold & Van Staden, 1990

Tridax procumbens Millerieae ND 27, L>D Marks & Nwachuku,

30/20 1986; Chauhan & Johnson, 2008b

Table 9.9. Trees in tropical montane forests

Montanoa Heliantheae ND g.h.? -  Tamayo-Rincón et al.,

quadrangularis 2010

Sinclairia glabra Libeae ND nur. -  Comisión Nacional Forestal, 2005

Table 9.10. Shrubs in the tropical montane zone

Bidens menziesii Coreopsideae PD 25/15 L>D Baskin et al., unpubl.

Brachylaena huillensis Tarchonantheae ND nur.? - Albrecht, 1993

Dubautia herbstobatae Madieae PD 13-19 - Yoshinaga, unpubl.

Dubautia menziesii Madieae PD 20-23, - Baskin et al., unpubl.;

20/10 Yoshinaga, unpubl.

Dubautia scabra Madieae PD 15/6 L>D Baskin et al., unpubl.

Erato polymnioides Libeae ND nur. - Morales-Herrera & Moreira-Palacios, 2020

Hesperomannia Vernonieae PD g.h. - Lilleeng-Rosenberger,

lydgatei 2005

Remya kauaiensis Astereae PD g.h., - Lilleeng-Rosenberger,

20-23 2005; Yoshinaga,

unpubl.

Tetramolopium Astereae PD field - Falkner et al., 1997

arenarium

Tetramolopium Astereae PD field - Falkner et al.,

consanguineum 1997

Tetramolopium Astereae PD g.h., - Lilleeng-Rosenberger,

filiforme 13-19 2005; Yoshinaga, unpubl.

Tetramolopium humile Astereae PD 13-19 - Yoshinaga, unpubl

Tetramolopium Astereae PD field - Falkner et al., 1997

lepidotum

Wilkesia Madieae PD g.h. - Lilleeng-Rosenberger,

gymnoxiphium 2005

Table 9.11. Vines in the tropical montane zone

Dubautia latifolia Madieae PD 13-19 - Yoshinaga, unpubl.

Table 9.12. Herbaceous species in the tropical montane zone

Acmella caulirhiza Heliantheae PD 28/13 L>D  Teketay, 1998a

Adenostemma lavenia Eupatorieae PD g.h. - Lilleeng-Rosenberger, 2005

Ageratina petiolaris Eupatorieae ND 25 - Martínez-Vellegas et al., 2018

Bidens sandvicensis Coreopsideae ND 13-19 - Yoshinaga, unpubl.

Bidens torta Coreopsideae PD nur., - Culliney & Koebele, 1999;

25/15 Baskin et al., unpubl.; Yoshinaga, unpubl.

Conyza abyssinica Astereae ND 28/13 L>D Teketay, 1998a

Conyza hochstetteri Astereae PD 20 L>D Teketay, 1998a

Cosmos bipinnatus Coreopsideae ND 20, 25 - Martínez-Vellegas et al., 2018

Dahlia coccinea Coreopsideae PD 15, 20, L>D Vivar-Evans et al.,

25, 2006; Martínez-

20/15 Vellegas et al., 2018

Dichrocephala Astereae ND 20 L>D Teketay, 1998a

chrysanthemifolia

Dichrocephala Astereae ND 20 L Teketay, 1998a

integrifolia

Galinsoga parviflora Millerieae ND, PD 25, L Van Rooden et al.,

20/10 1970; Baskin & Baskin,

25/15 1981; Karlsson et al., 2008

Galinsoga quadriradiata Millerieae PD 25 L>D  Rai & Tripathi, 1984;

Martinkova et al.,

1997; Jursik et al.,

2002, 2003

Helichrysum foetidum Gnaphalieae PD 20 L>D Teketay, 1998a

Inula confertiflora Inuleae PD 20 L>D  Teketay, 1998b

Keysseria mauiensis Astereae ND g.h. - Lilleeng-Rosenberger,

2005

Melanthera tenuifolia Heliantheae PD 13-19, - Baskin et al., unpubl.;

20/15 Yoshinaga, unpubl.

Pseudognaphalium Gnaphalieae PD g.h. - Lilleeng-Rosenberger,

sandwicensium 2005

Tithonia rotundifolia Heliantheae PD room - Muoghalu & Chuba,

2005

Tithonia tubaeformis Heliantheae ND 15, 20, - Martínez-Vellegas et

25, 30, al., 2018

35

Table 9.13. Tropical subalpine and alpine species

**Shrubs**

Ageratina asclepiadea Eupatorieae PD room? L>D Castañeda et al., 2007

Ageratina gynoxoides Eupatorieae PD room - Perez-Martínez & Castaneda-Garzon, 2017

Artemisia mauiensis Anthemideae ND 15/6 → - Baskin et al., unpubl.

30/15

Coespeletia timotensis Millerieae ND 10, 13, L>D Guariguata &

16 Azocar, 1988

Dendrosenecio Senecioneae ND 17 - Beck et al., 1984

keniodendron

Diplostephium rupestre Astereae PD room? - Pazmiño Araujo, 2021

Espeletia barclayana Millerieae PD 26-13/ - Mancipe-Murillo, 2020

19-11

Espeletia killipii Millerieae PD 26-13/ - Mancipe-Murillo, 2020

19-11

Espeletia paipana Millerieae PD 24 - Bohórquez-Quintero et al., 2016

Espeletia schultzii Millerieae PD 17 - Pannier, 1969

Espeletia summapacis Millerieae PD 26-13/ - Mancipe-Murillo, 2020

19-11

Espeletiopsis corymbosa Millerieae PD 26-13/ - Mancipe-Murillo, 2020

19-11

Monticalia peruviana Senecioneae PD room? - Pazmiño Araujo, 2021

Pentacalia andicola Senecioneae PD room? - Pazmiño Araujo, 2021

Pentacalia ledifolia Senecioneae PD room - Pérez-Martínez & Castañeda-Garzon, 2017

Pentacalia nitida Senecioneae PD room - Pérez-Martínez & Castañeda-Garzon, 2017

**Herbs**

Baccharis latifolia Astereae ND room? L>D Castañeda et al., 2007

Dubautia Madieae PD g.h., - Walker, 1995; Walker

sandwicensis field & Powell, 1999

Diplostephium Astereae PD room? L>D Castañeda et al., 2007

rosmarinifolium

Oritrophium Astereae PD 20 L>D Kootenay, 2008; Ulian

peruvianum et al., 2013

Paragynoxys meidiana Senecioneae PD room? - Cueva & Lucero, 2018

Table 9.14. Trees in semievergreen forests

Piptocarpha Vernonieae PD nur. - Lorenzi, 1998a

angustifolia

Piptocarpha Vernonieae ND nur. - Lorenzi, 1998a

tomentosa

Stifftia parviflora Stifftioideae PD, ND nur. - Lorenzi, 1998b

Vernonanthura Vernonieae PD 35/28 - Marquardt et al., 2018

discolor

Vernonanthura Vernonieae ND 25 L>D Fonseca et al.,

polyanthes 2012

Vernonia Vernonieae ND nur. - Elliott et al., 1996

volkameriifolia

Table 9.15. Shrubs in semievergreen forests

Baccharis retusa Astereae ND 30 L Garcia et al., 2006

Caesulia axillaris Inuleae PD 28 L Singh & Amritphale, 1992

Chromolaena odorata Eupatorieae ND 30/25 L Sánchez et al., 2015

Vernonanthura patens Vernonieae ND nur. - Garwood, 1979

Table 9.16. Vines in semievergreen forests

Bidens brasiliensis Coreopsideae ND field - Sanches & Valio, 2002

Mutisieaeia coccinea Mutisieae PD field - Sanches & Valio, 2002

Table 9.17. Herbaceous species growing in tropical semievergreen forests or in areas where forests have been removed

Acanthospermum Millerieae PD 20-25 L>D Garcia & Sharif,

hispidum 1995a,b; Duarteet al., 2012

Achyrocline Gnaphalieae PD 20, 25 L>D Ikuta & Barros, 1996

satureoioides

Adenostemma Eupatorieae ND 25, 30 L>D Godinho et al., 2011

brasilianum

Ageratum conyzoides Eupatorieae ND 25 L Van Rooden et al., 1970

Bidens gardneri Coreopsideae ND 25 L>D Rondon et al., 2001

Chaptalia nutans Mutisieae ND nur. - Garwood, 1979

Elephantopus scaber Vernonieae PD 25 - Rout et al., 2009

Flaveria trinerva Tageteae PD 25 L van Rooden et al., 1970

Lepidaploa canescens Vernonieae ND nur. - Garwood, 1979

Pluchea carolinensis Plucheeae ND 35/25 L>D Sánchez et al., 2015

Pseudelephantopus Vernonieae ND nur. - Garwood, 1979

spicatus

Senecio formosus Senecioneae PD 25 L=D van Rooden et al., 1970

Solidago chilensis Astereae PD 25 L>D Löbler et al., 2016

Stevia ovata Eupatorieae ND 24, 27, - Bebawi et al., 2018

24/20,

37/31

Stevia rebaudiana Eupatorieae ND 24, 25 L>D Bebawi et al., 2018;

Goettemoeller & Ching, 1999; Simlat et al., 2018

Synedrella nodiflora Heliantheae ND 25 L=D van Rooden et al., 1970

Tridax procumbens Millerieae ND 25 L van Rooden et al., 1970

Verbesina caracasana Heliantheae PD 25 L van Rooden et al., 1970

Verbesina gigantea Heliantheae ND nur. - Garwood, 1979

Table 9.18. Trees in tropical deciduous forests

Gochnatia palosanto Gochnatieae PD g.h.? - Cabrera et al., 2020

Table 9.19. Shrubs in tropical deciduous forests

Brachylaena huillensis Tarchonantheae ND 20-25 - Kigomo et al., 1994

Flourensia campestris Heliantheae PD 25, - Galíndez et al., 2009a;

25/10 Delbón et al., 2017

Flourensia hirta Heliantheae PD 25 - Delbón et al., 2017

Flourensia leptopoda Heliantheae PD 25 - Delbón et al., 2017

Flourensia niederleinii Heliantheae PD 25 - Delbón et al., 2017

Flourensia oolepis Heliantheae PD 25 - Galíndez et al., 2009a;

25/10 Delbón et al., 2017

Table 9.20. Vines in tropical deciduous forests

Table 9. 21. Herbaceous species in tropical deciduous forests

Ageratum conyzoide Eupatorieae PD room - Popay, 1974

Aldama dentata Heliantheae PD 25 - Jiménez-Vazquez et

al., 2021

Athroisma stuhlmanii Athroismeae PD room - Popay, 1974

Bidens biternata Coreopsideae PD 26-28 L>D Ahlawat & Dagar, 1980

Bidens pilosa Coreopsideae PD 25, 30, L>D Popay, 1973, 1974;

25/15 Zelaya et al., 1997; Felippe &Polo, 1983; Karlsson et al., 2008; Souza-Filho & Takaki, 2019

Bidens subalternans Coreopsideae PD 25, - Arcamone &

20/15, Jaureguiberry, 2018

35/30 Pamplona et al., 2020

Chromolaena odorata Eupatorieae PD room? - Godínez-Álvarez & Flores-Martinez, 1999

Emilia sonchifolia Senecioneae PD 25 L Felippe & Polo, 1983

Dyssodia porophyllum Tageteae PD room? - Godínez-Álvarez & Flores-Martínez, 1999

Galinsoga parviflora Millerieae PD 30 L Popay, 1973, 1974; Karlsson et al., 2008

Guizotia scabra Millerieae PD 25/15 L>D Karlsson et al., 2008

Lagascea mollis Heliantheae PD room - Popay, 1973, 1974

Launaea cornuta Cichorieae PD 30 - Popay, 1973, 1974

Porophyllum ruderale Tageteae ND 25 L>D Felippe & Polo, 1983

Praxelis diffusa Eupatorieae PD 25 L Felippe & Polo, 1983

Roldana barba-johannis Senecioneae PD 25 - Jiménez-Vazquez et al.,

2021

Schkuhria pinnata Bahieae PD 25 - Arcamone & Jaureguiberry, 2018

Stevia origanoides Eupatorieae PD 25 - Jiménez-Vazquez et

al., 2021

Tagetes minuta Tageteae ND, PD 25 L>D Felippe & Polo, 1983; Karlsson et al., 2008; Arcamone & Jaureguiberry, 2018

Tithonia diversifolia Heliantheae PD room - Akinola et al., 2000

Tridax procumbens Millerieae ND 30 L Popay, 1973, 1974

Verbesina virgata Heliantheae PD 25 - Jiménez-Vazquez et al., 2021

Viguiera michoacana Heliantheae ND room? - Godínez-Álvarez & Flores-Martínez, 1999

Zinnia peruviana Heliantheae PD 20, 25 - Galíndez et al, 2009a; Arcamone & Jaureguiberry, 2018

Table 9.23. Trees in tropical dry woodlands, natural savannas and grasslands

Cyrtocymura scorpioides Vernonieae PD room? - Lima et al., 2014

Eremanthus Vernonieae ND 20-30 - Feitosa et al., 2009

erythropappus

Gochnatia polymorpha Gochnatieae PD nur. - Lorenzi, 1998a; Lima et al., 2014

Piptocarpha rotundifolia Vernonieae PD nur - Lorenzi, 1998b

Table 9.24. Shrubs in tropical dry woodlands, natural savannas and grasslands

Baccharis Astereae ND 15, 20, L=D, Gomes & Fernandes,

dracunculifolia 25, 20 L>D 2002; Galíndez et al., 2009b; Manfreda et al., 2020

Baccharis platypoda Astereae ND 26 L Moura et al., 2016

Cassinia arcuata Gnaphalieae PD 21 - Campbell & Nicol, 1997

Eremanthus elaeagnus Vernonieae PD 15 L>D Velten & Garcia, 2005

Eremanthus glomeratus Vernonieae PD 25-30 L>D Velten & Garcia, 2005

Eremanthus incanus Vernonieae ND 15-30, L>D Velten & Garcia, 2005;

25 Nery et al., 2014

Gochnatia barrosii Gochnatieae ND 20, 25 L>D Ribeiro et al., 2013

Lopholaena coriifolia Senecioneae ND 30 L Weiersbye & Witkowski, 2002

Lychnophora pinaster Vernonieae PD 30/20 - Melo et al., 2007

Table 9. 25. Lianas and vines in tropical dry woodlands, natural savannas and grasslands

Table 9.26. Herbaceous species of tropical dry woodlands, natural savannas and grasslands

Achyrocline flaccida Gnaphalieae PD - - Davies, 1999

Ageratina adenophora Eupatorieae PD 25 L Auld & Martin, 1975

Arctotheca Arctotideae PD 25 L>D Chaharsoghi & Jacobs,

calendula 1998

Aster harveyanus Astereae ND 30 L>D Weiersbye & Witkowski, 2002

Berkheya setifera Cynareae PD 30 - Weiersbye & Witkowski, 2002

Bidens gardneri Coreopsideae PD 25 L>D Sassaki et al., 1999b

Brachyscome ciliaris Astereae PD room? - McBurnie, 2002

Cavalcantia glomerata Eupatorieae PD 20 - Zanetti et al., 2020

Cavalcantia percymosa Eupatorieae PD 20 - Zanetti et al., 2020

Centrapalus pauciflorus Vernonieae PD 25 L=D, Teketay, 1993; L>D Nyamongo et

al., 2009

Chresta sphaerocephala Vernonieae ND 20, 25 - Cury et al., 2010; Sousa et al., 2021

Chrysocephalum Gnaphalieae PD 20 L=D Willis & Groves,

apiculatum 20/10 1991; Erickson

et al., 2017

Emilia sonchifolia Senecioneae ND 27 - Marks & Akosim, 1984

Felicia clavipilosa Astereae PD 22/15 - Kos & Poschlod, 2007; Kos et al., 2012

Geigeria pectidea Inuleae ND 30/15 - Kos & Poschlod, 2007; Kos et al., 2012

Helichrysum petiolare Gnaphalieae PD fall - https://www.cal- ipc.org/resources/library/publications/ipcw/report56/

Helichrysum rugulosum Gnaphalieae PD 30 - Weiersbye & Witkowski, 2002

Helipterum albicans Gnaphalieae PD 20/10 L=D Willis & Groves, 1991

Lepidaploa arenaria Vernonieae PD 25 - Zanetti et al., 2020

Leptorhynchos squamatus Gnaphalieae PD 20/10 L=D Willis & Groves, 1991;

Hodges et al., 2022

Lessingianthus Vernonieae ND 20, 25, - Cury et al., 2010

Bardanoides 30

Lessingianthus linearifolius Vernonieae ND 25/15 - Le Stradic et al., 2015

Leucochrysum stipitatum Gnaphalieae PD outside - Collins, 2003

Monogereion carajensis Eupatorieae PD 30 - Zanetti et al., 2020

Nolletia rarifolia Astereae PD 30 - Weiersbye & Witkowski, 2002

Parapiqueria cavalcantei Eupatorieae PD 20 - Zanetti et al., 2020

Parthenium Heliantheae PD 20, 25, L>D, Tamado et al., 2002;

hysterophorus 25/15, L Galíndez et al., 2009a;

20/10, Karlsson et al., 2008

25/10

Porophyllum ruderale Tageteae ND 25, 39 L>D Yamashita et al., 2008

Praxelis asperulacea Eupatorieae PD 20 - Zanetti et al., 2020

Pterocaulon sphacelatum Plucheeae PD 35 - Erickson et al., 2017

Rhodanthe charsleyae Gnaphalieae PD room? - McBurnie, 2002

Rhodanthe floribundaGnaphalieae PD 12, 20 L>D Jurado & Westoby, 1992; Plummer & Bell, 1995

Rhodanthe margarethae Gnaphalieae PD 25 - Erickson et al., 2017

Schoenia cassiniana Gnaphalieae PD 10-20, L>D Plummer & Bell, 1995;

room? McBurnie, 2002; Collins, 2003

Schoenia filifolia Gnaphalieae PD 5-20 L=D Plummer & Bell, 1995

Senecioneaeio garlandii Senecioneae PD 20 - Burrows, 1995; Offord

20/23 et al., 2004

Senecioneaeio Senecioneae PD 20/10 - Hodges et al., 2022

quadridentatus

Streptoglossa decurrens Plucheeae PD 25, 30 - Erickson et al., 2017

Streptoglossa odora Plucheeae PD 20 - Jurado & Westoby, 1992

Synedrella nodiflora Heliantheae ND 27, 30 L>D Marks & Akosim, 1984

Tridax procumbens Millerieae ND 27 - Marks & Akosim, 1984

Verbesina encelioides Heliantheae PD 20/10 L>D Karlsson et al., 2008

Vernonia herbacea Vernonieae PD 25, L>D Sassaki et al., 1999a

25/17

Viguiera robusta Heliantheae ND 30, L>D Ruggiero & Zaidan,

30/20 1997

Vittadinia cuneata Astereae PD 20/10 - Hodges et al., 2022

Vittadinia gracilis Astereae PD 20/10 - Hodges et al., 2022

Vittadinia muelleri Astereae PD 20/10, L>D Willis & Groves, 25/15 1991; Hodges et al., 2022

Xerochrysum Gnaphalieae PD 20/10 - Hodges et al., 2022

subundulatum 30/25

Table 9. 27. Trees in hot semideserts and deserts

Table 9. 28. Shrubs in hot semideserts and deserts

Acamptopappus Astereae PD 20 - Kay et al., 1984

sphaerocephalus

Achillea fragrantissima Anthemideae PD outdoors - Shalaby & Youssef, 1967

Ageratina espinosarum Eupatorieae PD 25 - Gelviz-Gelvez et al., 2020

Ambrosia deltoidei Heliantheae PD? Field - Bowers, 2002

Ambrosia dumosa Heliantheae PD 15, 21 - Graves et al., 1975; Kay et al., 1984

Ambrosia salsola Arctotideae PD 21 - Graves et al., 1975

Artemisia abyssinica Anthemideae ND 20, 15, - Mahmoud et al., 1983

21/10

Artemisia aucheri Anthemideae PD 18/12 - Gazanchian & Zarif Ketabi, 2012

Artemisia kupetdaghensis Anthemideae PD 18/12 - Gazanchian & Zarif Ketabi, 2012

Artemisia monosperma Anthemideae PD 15 L Koller et al., 1964a,b; Huang & Gutterman, 1998, 1999a; Huang et al., 2000

Artemisia sieberi Anthemideae PD 18/12 - Gazanchian & Zarif Ketabi, 2012

Baccharis crispa Astereae PD 30/20 - Aráoz et al., 2016

Baccharis salinica Astereae PD 30/20 - Aráoz et al., 2016

Brachyclados megalanthus Mutisieae PD 25 - Peter et al., 2014

Cyclolepis genistoides Gochnatieae PD - - Peter et al., 2014

Encelia farinosa Heliantheae PD 25 - Padgett et al., 1999

Encelia virginensis Heliantheae PD 20 - Kay et al., 1984

Neonesomia palmeri Astereae ND 20-25 L>D Mayeux, 1982

Euryops multifidus Senecioneae PD 20 - Henrici, 1935

Flourensia cernua Heliantheae PD 25/20 L>D Valencia-Diaz & Montana, 2003

Flourensia resinosa Heliantheae PD 25 - Gelviz-Gelvez et al., 2020

Gochnatia hypoleuca Gochnatieae PD 12, 18 - Jurado et al., 2000

Grindelia brachystephana Astereae PD 25 - Peter et al., 2014

Gymnosperma glutinosum Astereae PD 12, 25 - Jurado et al., 2000; Gelviz- Gelvez et al.,

2020

Hyalis argentea Hyalideae PD Dalmasso et al., 2008

Isocoma drummondii Astereae PD 20-25 L>D Mayeux & Scifres, 1978

Lepidospartum Senecioneae PD 21 - Graves et al., 1975

squamatum

Montanao tomentosa Astereae ND 25 - Gelviz-Gelvez et al., 2020

Osteospermum leptolobum Calenduleae PD 20 - Henrici, 1935

Osteospermum muricatum Calenduleae PD 20 - Henrici, 1935

Osteospermum spinescens Calenduleae PD 20 - Henrici, 1935

Parthenium argentatum Heliantheae PD 30/20, L>D Benedict & Robinson, 25 1946; Bekaardt et al., 2004; Dissanayake et al., 2010

Psilostrophe cooperi Helenieae ND Nur. - Everett, 2012

Pteronia glauca Astereae PD 20 - Henrici, 1935

Rhanterium epapposum Inuleae PD 25, L>D Suleiman et al.,

25/20, 2009; Zaman et al.,

22/10 2010; Bhatt et al., 2021

Senecioneaeio subulatus Senecioneae PD 25 - Peter et al., 2014

Seriphidium diffusum Anthemideae PD 18/12 - Gazanchian & Zarif

Ketabi, 2012

Thymophylla tephroleuca Tageteae PD 21 - Bhatt et al., 2021

Trixis californica Mutisieae ND Everett, 2012

Viguiera stenoloba Heliantheae PD 12 - Jurado et al., 2000

Table 9. 29. Vines in hot semideserts and deserts

Table 9. 30. Succulent perennialsin hot semideserts and deserts

Table 9. 31. Herbaceous perennials in hot semideserts and deserts

Achillea tenuifoliaAnthemideae PD 10 L>D Hammouda & Bakr, 1969

Ageratina havanensis Eupatorieae ND 15/6 L Baskin et al., 1998

Amellus tenuifolius Astereae PD 17 L=D de Villiers et al., 2002a,b

Arctotis stoechadifolia Arctotideae PD 7-17 - de Villiers et al.,

2002a,b

Baccharis neglecta Astereae ND 30/15 L Baskin et al., 1998

Baileya multiradiata Helenieae PD 30 - Pendelton & Pendelton, 2014

Berlandiera lyrata Heliantheae PD 20 - Kootenay, 2008

Brickellia dentata Eupatorieae ND 35/20 L=D Baskin et al., 1998

Chaptalia nutans Mutisieae PD 20/10 - Baskin et al., 1994

Conoclinum gregii Eupatorieae PD 20 - Kootenay, 2008

Dimorphotheca tragus Calenduleae PD 12 D>L de Villiers et al., 2002a,b

Echinops spinosissimus Cynareae PD 20 D>L Hammouda & Bakr, 1969

Engelmannia pinnatifida Heliantheae PD 30/20 - Kissock & Haferkamp, 1983

Erigeron modestus Astereae PD 15/6 - Baskin et al., 1994

Flaveria chlorofolia Tageteae ND 32/10 D>L Peralta-García et al., 2016

Gaillardia multiceps Helenieae PD 29/24 - Secor &

Farhadnejad, 1978

Gaillardia pinnatifida Helenieae PD 29/24 - Secor & Farhadnejad, 1978

Gaillardia suavis Helenieae PD 25/15 - Baskin et al., 1994

Gazania leiopoda Arctotideae PD 12 D>L de Villiers et al., 2002a,b

Glossocardia bosvallia Coreopsideae PD room L>D Sen & Chatterji, 1968

Grindelia glutinosa Astereae PD room? - Castro et al., 1995

Grindelia tarapacana Astereae PD room? - Castro et al., 1995

Gymnosperma glutinosum Astereae ND 25/15 L Baskin et al., 1998

Helianthus divaricatus Heliantheae PD - - Chandler & Jan, 1985

Hymenopappus scabiosaeus Bahieae PD 20/10 - Baskin et al., 1994

Machaeranthera pinnatifida Astereae PD 20/10 - Pendelton & Pendelton, 2014

Onopordum alexandrinum Cynareae PD 30-35 L=D Hammouda & Bakr, 1969

Pinaropappus roseus Cichorieae PD 20/10 - Baskin et al., 1994

Pteronia divaricata Astereae PD 12 L=D de Villiers et al., 2002a,b

Symphyotrichium ericoides Astereae ND 25/15 - Baskin et al., 1998

Streptoglossa macrocephala Plucheeae PD 20 - Commander et al., 2017

Tetraneuris scaposa Helenieae PD 20/10, - Baskin et al., 1994

Varilla texana Tageteae PD 28 - Pluenneke & Joham, 1972

Zinnia grandiflora Heliantheae PD 20/10 - Pendelton & Pendelton, 2014

Viguiera dentata Heliantheae PD 25/15 L Baskin et al., 1998

Table 9. 32. Annualsin hot semideserts and deserts

Anthemis Anthemideae PD 20/10 L=D Baskin et al., unpubl.

leucanthemifolium

Anthemis melampodina Anthemideae PD 15/6 L>D Baskin et al., unpubl.

Arctotis fastuosa Arctotideae PD 32 L>D Beneke et al., 1993

Coreopsis bigelovii Coreopsidea PD 20 - Capon & Van Asdall, 1967

Crepis aspera Cichorieae PD 25/15 - El-Keblawy, 2003

Dicoma tomentosa Dicomeae PD room L>D Sen & Chatterji, 1968

Dimorphotheca pluvialis Calenduleae PD 17 L>D de Villiers et al., 2002a,b

Dimorphotheca polyptera Calenduleae PD 7-22 D>L Beneke et al., 1993; de Villiers, 2002a, b

Dimorphotheca sinuata Calenduleae PD 7-22 L=D Beneke et al., 1993; de Villiers et al., 2002a,b

Eriophyllum lanosum Madieae PD 18/3 - Adondakis & Venable, 2004; Huang et al., 2016

Eriophyllum wallacei Madieae PD 20 - Capon & Van Asdall, 1967

Evax multicaulis Gnaphalieae PD 22/7 - Adondakis & Venable, 2004; Huang et al., 2016

Gaillardia pulchella Helenieae PD 20/10 - Baskin et al., 1992b;

30 Pendleton & Pendleton, 2014

Geraea canescens Heliantheae PD 20 - Capon & Van Asdall, 1967; Pendleton & Pendleton, 2014

Gymnarrhena micrantha Gymnarrheneae ND 10, 15 L>D Koller & Roth, 1964

Hedypnois rhagdioloides Cichorieae PD 25/15 - El-Keblawy, 2003

Helianthus deserticola Heliantheae PD 24 - Chandler & Jan, 1985; Dağustü & Ozer, 2014

Helianthus paradoxus Heliantheae PD 25 L>D Van Auken, 2001

Helipterum craspedioides Gnaphalieae PD 15 L=D Mott, 1972; Mott & McComb, 1975

Helipterum craspedioides Gnaphalieae PD 15 L=D Mott, 1972; Mott & McComb, 1975

Hymenoxys odorata Helenieae PD 20 L=D Whisenant & Ueckert, 1982

Krigia cespitosa Cichorieae PD 20/10 - Baskin et al., 1992b

Lindheimera texana Heliantheae PD 28/15 - Baskin et al., 1995b

Machaeranthera gracilis Astereae ND 15/6, L Baskin et al., unpubl.

20/10

Palafoxia callosa Bahieae PD 15/6 L>D Baskin et al., 1999

Perityle emoryi PerityleaeND - - https:// graniteseed.com /seed/wildflowers-forbs/desert-daisy/

Pyrrhopappus pauciflorus Cichorieae PD 15/6 - Baskin et al., 1992b

Senecio arenarius Senecioneae PD 7 L>D de Villiers et al., 2002a,b

Stylocline micropoides Gnaphalieae PD 18/3 - Adondakis & Venable, 2004; Huang et al., 2016

Tetraneuris linearifolia Helenieae PD 25/15 - Baskin et al., 1992b

Townsendia annua Astereae PD 30 - Pendleton & Pendleton, 2014

Ursinia anthemoides Anthemideae PD 12, 22 L>D de Villiers et al., 2002a,b

Ursinia cakilefolia Anthemideae PD 20, D>L Beneke et al., 1993

20/10

Ursinia speciosa Anthemideae PD 17 L>D de Villiers et al., 2002a,b

**Temperate and arctic**

Table 10. 1. Trees in matorral vegetation

Table 10.2. Shrubs in matorral vegetation

Artemisia caerulescens Anthemideae PD 20/10 L>D Lombardi et al., 2019

Artemisia californica Anthemideae PD 23 L Keeley, 1987

Artemisia herba-alba Anthemideae PD 30/15 - Homrani-Bakali, 2015

Baccharis pilularis Astereae PD 30/20 - Rosbakh et al., 2020

Baccharis slicina Astereae PD 30/10 - Rosbakh et al., 2020

Bahiopsis laciniata Heliantheae PD 23 L>D Keeley, 1987

Cassinia quinquefaria Gnaphalieae PD 25/15 L>D Clarke et al., 2000

Centaurea cineraria Cynareae PD 15, 20 - Piotto & Di Noi, 2003

Centaurodendron Cynareae PD 20 - Cuevas & Figueroa,

dracaenoides 2007

Chrysanthemodides Calenduleae PD 20/10 - Reynolds et al., 2013

monilifera (drupes)

Chrysocephalum Gnaphalieae PD 20/10 - Piotto & Di Noi, 2003

apiculatum

Chrysocephalum Gnaphalieae PD 20/10 - Hodges et al., 2022

semipapposum

Dendroseris litoralis Cichorieae PD? 20 - Cuevas & Figueroa, 2007

Dendroseris micrantha Cichorieae PD - - Cuevas & Figueroa, 2007

Dicerothamnus Gnaphalieae PD room - Levyns, 1935

rhinocerotis

Edmondia sesamoides GnaphalieaePD20/10 **-** Holmes & Newton, 2004

Ericameria fasciculata Astereae ND g.h. - Detka & Lambrecht, 2010

Erigeron fernandezianus Astereae PD 20, 25 - Cuevas & Figueroa, 2007

Euryops linearis SenecioneaePD **- -** Brown & Botha, 2004

Euryops speciosissimus SenecioneaePD **- -** Brown & Botha, 2004

Euryops virgineus Senecioneae PD - - Brown & Botha, 2004

Felicia echinata Astereae ND 20/10 L=D Pierce & Moll, 1994

Hazardia squarrosa Astereae PD 23 L>D Keeley, 1987

Helichrysum italicum Gnaphalieae PD 20 D>L Piotto & Di Noi, 2003

Helichrysum italicum Gnaphalieae PD 25 - Picciau et al.. 2019

subsp. microphyllum

Helichrysum patulum GnaphalieaePD **- -** Brown & Botha, 2004

Helichrysum scorpioides Gnaphalieae PD 20 L=D Piotto & Di Noi, 2003

Helichrysum stoechas Gnaphalieae PD autumn L=D Martin et al., 1995; Piotto & Di Noi, 2003

Ixodia achilleoides Gnaphalieae PD g.h. - Enright & Kintrup, 2001

Launaea arborescens Cichorieae ND 15-30 L>D Schütz & Milberg, 1997

Leucochrysum albicans Gnaphalieae PD 20/10 - Hodges et al., 2022

Metalasia muricata Gnaphalieae PD 20/10 L>D Pierce & Moll, 1994

Holmes & Newton, 2004

Oedera capensis Gnaphalieae PD - - Brown & Botha, 2004

Oedera genistaefolia Gnaphalieae PD room - Levyns, 1935

Olearia muelleri Astereae PD g.h. - Kullmann, 1982

Olearia muricata Astereae PD g.h. - Kullmann, 1982

Olearia paucidentata Astereae PD g.h. - Kullmann, 1982

Olearia rudis Astereae PD g.h. - Kullmann, 1982

Othonna quinquedentata SenecioneaePD **- -** Brown & Botha, 2004

Pembertonia latisquamea Astereae ND 26/13 - Commander et al., 2007, 2009

Pericallis hadrosoma Senecioneae PD 22 - Maya et al., 1988

Phaenocoma prolifera GnaphalieaePD **- -** Brown & Botha, 2004

Rhetinocarpha suffruticosa Gnaphalieae PD 15 - Cochrane & Probert, 2006

Rhodanthe anthemoides Gnaphalieae PD 20/10 - Hodges et al., 2022

Senecio megaglossus Senecioneae PD 15/5 - Erickson et al., 2007

Santolina Anthemideae PD - Kootnay, 2008

chamaecyparissus

Santolina insularis Anthemideae ND 20 - Picciau et al. 2019

Santolina rosmarinifolius Anthemideae PD - - Kootnay, 2008

Schoenia cassiniana Gnaphalieae PD 15, 20 L =D Piotto & Di Noi, 2003

Syncarpha eximia GnaphalieaePD **- -** Brown & Botha, 2004

Syncarpha speciosissima Gnaphalieae PD 20/10 - Holmes & Newton, 2004

Syncarpha vestita Gnaphalieae PD 20/10 - Brown et al., 1998; Holmes & Newton, 2004

Table 10.3. Vines of matorral vegetation

Mutisia latifolia Mutisieae PD 10-12 - Kootenay, 2008

Table 10. 4. Herbaceous species of matorral vegetation

Achillea tomentosa Anthemideae PD 20 - Kootenay, 2008

Achnophora tatei Astereae PD 15/5 - Quarmby et al., 2007

Actinobole uliginosum Gnaphalieae PD 25/15 - Hoyle et al., 2008a,b, c

Allittia cardiocarpa Astereae PD - - Aleman et al., 2011

Allittia uliginosa Astereae PD - - Aleman et al., 2018

Anacyclus maroccanus Anthemideae ND 20 - Kootenay, 2008

Anacyclus radiatus Anthemideae ND 24/18 L>D Bastida &

Menendez, 2004

Andryata agardhii Cichorieae PD 20- - Kootenay, 2008

Andryala pinntifida Cichorieae PD 23 - Pita, 1996, 1989

Andryala ragusina Cichorieae PD 12/2, - Schütz, 1999

15/5,

20/10

Anthemis chrysantha Anthemideae PD 25 L>D Aguado et al., 2011

Anthemis glaberrima Anthemideae PD - - Fournaraki et al., 2007

Anthemis marschalliana Anthemideae PD 23 - Abdalla & McKelvie, 1980

Arctotheca calendula Arctotideae PD 25/17 L=D Ellery & Chapman, 2000; Ellery, 2002; Towers et al., 2022

Arctotis fastuosa Arctotideae PD 20/10 - de Waal et al., 2016

Arctotis revoluta Arctotideae PD 20/10 - de Waal et al., 2016

Arctotis stoechadifolia Arctotideae PD g.h.? - Brown & Botha, 2004

Arctotis undulata Arctotideae PD 20/10 - de Waal et al., 2016

Argyranthemum Anthemideae PD 15-20 - Francisco-Ortega et

adauctum al., 1994

Argyranthemum Anthemideae PD 15-20 - Francisco-Ortega et

broussonetii al., 1994

Argyranthemum Anthemideae PD 15-20 - Francisco-Ortega et

coronopifolium al., 1994

Argyranthemum escarrei Anthemideae PD 15-20 - Francisco-Ortega et al., 1994

Argyranthemum Anthemideae PD 15-20 - Francisco-Ortega et

foeniculaceum al., 1994

Argyranthemum Anthemideae PD 15-20 - Francisco-Ortega et

frutescens al., 1994

Argyranthemum gracile Anthemideae PD 15-20 - Francisco-Ortega et al., 1994

Argyranthemum Anthemideae PD 15-20 - Francisco-Ortega et

haouarytheum al., 1994

Argyranthemum hierrense Anthemideae PD 15-20 - Francisco-Ortega et al., 1994

Argyranthemum lemsii Anthemideae PD 15-20 - Francisco-Ortega et al., 1994

Argyranthemum Anthemideae PD 15-20 - Francisco-Ortega et

maderense al., 1994

Argyranthemum sventenii Anthemideae PD 15-20 - Francisco-Ortega et al., 1994

Argyranthemum teneriffae Anthemideae PD 15-20, 23 - Francisco-Ortega et al., 1994; Pita, 1996

Argyranthemum webbii Anthemideae PD 15-20 - Francisco-Ortega et al., 1994

Artemisia caerulescens Anthemideae PD 17/11 - Boscagli et al., 1996

subsp. cretacea

Atractylis cancellata Cynareae PD 12/2, 15/5, - Schütz, 1999

20/10,

25/15

Brachyscome Astereae PD - - Aleman et al., 2011

campylocarpa

Brachyscome ciliaris Astereae PD 15/5 - Aleman et a l., 2015

Brachyscome cuneifolia Astereae PD - - Aleman et al., 2011

Brachyscome dentata Astereae PD - - Aleman et al., 2011

Brachyscome iberidifolia Astereae PD 24/13 L>D, Bunker, 1994a,b

Brachyscome Astereae PD 10 - Hoyle et al., 2008b

melanocarpa

Brachyscome muelleri Astereae PD 20, - Jusaitis et al., 2003,

15/5 2004; Erickson et al., 2007

Brachyscome parvula Astereae PD - - Aleman et al., 2011

Calendula arvensis Calenduleae PD 20 L>D Ruiz De Clavijo, 2005

Calocephalus citreus Gnaphalieae PD 20/10 - Hodges et al., 2022

Calocephalus francisii Gnaphalieae PD g.h. - Kullmann, 1982

Calotis cuneifolia Astereae PD 20 - Hoyle et al., 2008b

Calotis lappulacea Asterae ND 20/10 - Hodges et al., 2022

Camptacra barbata Astereae PD 15 - Hoyle et al., 2008b

Carduus clavulatus Cynareae PD 23 L>D Pita, 1996

Carduus pycnocephalus Cynareae ND 15, 20 - Evans et al., 1979; Olivieri et al., 1983

Carduus tenuiflorus Cynareae ND 20/2 - Evans et al., 1979; Olivieri et al., 1983

Carthamus lanatus Cynareae PD - - Rosbakh et al., 2020

Catananche caerulea Cichorieae PD 15 - Luna et al., 2008b

Catananche lutea Cichorieae PD - - Ruiz de Calvijo, 1995

Centaurea debeauxii Cynareae PD 20/10 - Herranz et al., 2002

Centaurea pinae Cynareae PD 15 - Luna et al., 2008b

Centaurea solstitialis Cynareae PD 20 - Larson & Kiemnec, 1997; Roché & Thill, 2001; Young et al., 2005

Chamaemelum nobile Anthemideae ND 20 - Kootenay, 2008

Cheirolophus arboreus Cynareae PD 23 - Pita, 1996, 1989

Cheirolophus duranii Cynareae PD 23 - Pita, 1996

Chrysanthemum Anthemideae PD 23 - Abdalla & McKelvie,

maximum 1980

Chrysocephalum Gnaphalieae PD 24/13 L>D Bunker, 1994a,b;

apiculatum Morgan, 1998

Cladanthus mixtus Anthemideae ND 25 - Harras & Lamarti, 2014

Corymbium laxum Corybioideae PD - - Brown & Botha 2004

Craspedia variabilis Gnaphalieae PD 20/10 L=D Morgan & Lunt, 1994; Hodges et al., 2022

Crepis sancta Cichorieae PD 25/10 - Imbert et al., 1996

Crupina vulgaris Cynareae PD 15, 20 - Roché & Thill, 2001; Roché et al., 1997a

Cyanus tchiatcheffii Cynareae PD 24 - Ozel, 2017

Cynareaea cardunculus Cynareae PD 20/10 - Huarte et al., 2018

Deinandra increscens Madieae PD 22/7 - Tanowitz et al., 1987

Dicoma anomala Dicomeae PD 15, 20 - Mofokeng et al., 2012

Dimorphotheca acutifolia Calenduleae PD 20/10 - de Waal et al., 2016

Dimorphotheca pluvialis Calenduleae PD 20/10 - de Waal et al., 2016

Dimorphotheca polyptera Calenduleae PD 20/10 - de Waal et al., 2016

Dittrichia graveolens Inuleae PD 22, 27 - Brownsey et al., 2013

Dittrichia viscosa Inuleae PD 22/18, - Pérez-Fernandez &

24/18 Rodríguez-Esheverría, 2003; Pérez-Fernandez et al., 2003

Erigeron bonariensis Astereae ND 20 L Wu et al., 2007

Felicia aethiopica Astereae PD - - Brown & Botha 2004

Felicia heterophylla Astereae PD - - Brown & Botha 2004

Gazania linearis Arctotideae PD 20 - Kootenay, 2008

Gazania pectinata Arctotideae PD 20/10 - de Waal et al., 2016

Gazania rigida Arctotideae ND 20/10 - de Waal et al., 2016

Gazania tenuifolia Arctotideae PD 20/10 - de Waal et al., 2016

Gerbera jamesonii Mutisieae ND 25 - Carpenter et al., 1995

Glebionis coronaria Anthemideae PD 15-20, L=D Chiang & Park, 1994;

25/15, Bastida & Menendez,

24/18, 2004; Puglia et al.,

10 2015

Gnephosis arachnoidea Gnaphalieae PD 15 - Hoyle et al., 2008b

Gonospermum gomerae Anthemideae ND 23 L>D Pita, 1996

Grindelia robusta Astereae PD 20 - Kootenay, 2008

Hedypnois rhagadioloides Cichorieae PD 15 L Kigel, 1992

Helenium aromaticum Helenieae ND 20/10 - Gomez-González et al., 2011

Helichrysum aureonitens Gnaphalieae PD 25, 30 L>D Afolayan et al., 1997

Helichrysum italicum Gnaphalieae ND 25/10 - Picciau et al., 2018;

20/10 Sotes et al., 2021

Helichrysum scorpioides Gnaphalieae PD 20 L=D Morgan & Lunt, 1994

Hemizonia fasciculata Madieae PD 15 - Bliss & Zendler, 1998

Heterotheca grandiflora Astereae PD 18.5/4.5 - Flint & Palmblad, 1978

Hirpicium alienatum Arctotideae ND 20/10 - de Waal et al., 2016

Hirpicium echinus Arctotideae PD 20/10 - de Waal et al., 2016

Hyalosperma glutinosum Gnaphalieae PD 24/13 L>D Bunker, 1994a,b; Towers et al., 2022

Hyoseris scabra Cichorieae PD 20, 25,30 L>D Gresta et al., 2010

Inula anatolica Inuleae PD 20 - Kazanci & Tavşanoglu, 2019

Inula candida Inuleae PD 20 - Kootenay, 2008

Klasea flavescens Cynareae PD 12/2, 15/5, - Schütz, 1999

20/10,

25/15

Lactuca serriola Cichorieae ND 15 - Muniz, 2000

Lactuca virosa Cichorieae PD - - Rosbakh et al., 2020

Lactuca watsoniana Cichorieae PD 10/5 - Dias et al., 2015

Lagenophora lanata Astereae PD 20 L=D Morgan & Lunt, 1994

Lamyropsis microcephala Cynareae PD 30, L=D Mattana et al., 2009

30/15

Leiocarpa brevicompta Gnaphalieae PD 15 - Hoyle et al., 2008b

Leontodon saxatilis Cichorieae PD 12, 19 L>D Ruiz de Clavijo, 2001

subsp. rothii

Leontodon saxatilis Cichorieae PD 18, 21 - Brändel, 2007

Leptorhynchos baileyi Gnaphalieae PD 15 - Hoyle et al., 2008b

Leptorhynchos nitidulus Gnaphalieae PD 20/10 D>L Morgan & Lunt, 1994

Leptorhynchos squamatus Gnaphalieae PD 20/10 - Hodges et al., 2022

Leptorhynchos tenuifolius Gnaphalieae PD 20/10 D>L Morgan, 1998

Leucochrysum albicans Gnaphalieae PD 25/15, L>D Morgan, 1998; Clarke

20/10 et al., 2000

Leucochrysum Gnaphalieae PD 24/13, L>D, Bunker, 1994a,b; Bell

fitzgibbonnii 15 L et al., 1999

Leucochrysum molle Gnaphalieae PD 24/13 L>D Bunker, 1994a,b

Leucochrysum stipitatum Gnaphalieae PD 24/13 L>D Bunker, 1994a,b

Microseris lanceolata Cichorieae PD 25/15 L>D Morgan, 1998; Clarke et al., 2000

Microseris scapigera Cichorieae PD 20/10 - Hodges et al., 2022

Millotia myosotidifolia Gnaphalieae PD 15 L>D Schütz et al., 2002

Minuria integerrima Astereae ND 15 - Hoyle et al., 2008b

Monoculus hyoseroides Calenduleae PD 20/10 - de Waal et al., 2016

Myriocephalus rudallii Gnaphalieae PD g.h. - Kullmann, 1982

Norlindhia amplectens Calenduleae PD 20/10 - de Waal et al., 2016

Onopordum carduelium Cynareae PD 22 - Maya et al., 1988

Onopordum caricum Cynareae. PD 20 - Catav et al., 2018

Onopordum nervosum Cynareae PD 25/15 - Fernandez et al., 2002

Osteospermum Calenduleae ND 20/10 - de Waal et al., 2016

grandiflorum

Osteospermum jucundum Calenduleae ND 20 - Kootenay, 2008

Osteospermum Calenduleae PD 20/10 - de Waal et al., 2016

microcarpum

Osteospermum Calenduleae PD 20/10 - de Waal et al., 2016

oppositifolium

Osteospermum pinnata Calenduleae PD 20/10 - de Waal et al., 2016

Osteospermum sinuatum Calenduleae PD 20/10 - de Waal et al., 2016

Pallenis spinosa Inuleae ND 20 - Kazanci & Tavşanoglu, 2019

Paquerina graminea Astereae PD - - Aleman et al., 2011

Pericallis cruenta Senecioneae PD 23 - Abdalla & McKelvie, 1980

Pericallis lanata Senecioneae PD 23, 25 L=D Pita, 1989, 1996

Phagnalon saxatile Gnaphalieae PD 15/5, - Schütz, 1999

20/10,

25/15

Pilostemon casabonae Cynareae ND 10, 15, 20 - Picciau et al., 2019

Pithocarpa corymbulosa Gnaphalieae PD g.h. - Kullmann, 1982

Podolepis lessonii Gnaphalieae PD 20/10 - Dwyer & Erickson, 2016

Podotheca chrysantha Gnaphalieae PD 15 L>D Schütz et al., 2002

Podotheca gnaphaliodes Gnaphalieae PD 15 D>L Schütz et al., 2002

Polycalymma stuartii Gnaphalieae PD 24/13, - Williams, 1986;

15 Bunker, 1994b; Roche et al., 1997b

Psilocarpus brevissimus Astereae PD 15? - Bliss & Zendler, 1998

Ptilostemon diacantha Cynareae ND 20 - Kootenay, 2008

Pulicaria canariensis Inuleae PD 23 D>L Pita, 1996, 1989

Pycnosorus chrysanthes Gnaphalieae PD 10 - Hoyle et al., 2008b

Rafinesquia californica Cichorieae PD 23 - Keeley & Keeley, 1987

Reichardia tingitana Cichorieae PD 12/2 - Schütz, 1999

Rhaponticum coniferum Cynareae PD 15 - Luna et al., 2008b

Rhetinocarpha Gnaphalieae PD g.h., 15 - Kullmann, 1982;

suffruticosa Cochrane & Probert, 2006

Rhodanthe chlorocephala Gnaphalieae PD 24/13, 20 L>D Bunker, 1994; Peishi et al., 1999

Rhodanthe floribunda Gnaphalieae PD 10 - Hoyle et al., 2008b

Rhodanthe manglesii Gnaphalieae PD 24/13 L=D Bunker, 1994a,b

Rhodanthe moschata Gnaphalieae PD 24/13 D>L Bunker, 1994a,b; Hoyle et al., 2008b

Rhodanthe polygalifolia Gnaphalieae PD 24/13 D>L Bunker, 1994a,b

Rhodanthe stricta Gnaphalieae PD 24/13 L>D Bunker, 1994a,b

Rutidosis Gnaphalieae ND 20/10 L=D Morgan, 1998

leptorrhynchoides

Schoenia cassiniana Gnaphalieae PD 15-20 L Mott, 1972

Schoenia filifolia Gnaphalieae PD 24/13, 20 L>D Bunker, 1994a,b; Peishi et al., 1999

Scorzonera reverchonii Cichorieae PD 20/7 - Copete et al., 2018

Scorzoneroides muelleri Cichorieae PD 21/18 - Cruz-Mazo et al., 2010

Scorzoneroides palisiae Cichorieae PD 21/18 - Cruz-Mazo et al., 2010

Scorzoneroides salzmannii Cichorieae PD 21/18 - Cruz-Mazo et al., 2010

Senecio coincyi Senecioneae PD 15, 20, L>D Martínez-García et 25/15 al., 2012

Senecio macrocarpus Senecioneae ND 20/10 L=D Morgan, 1998

Senecio morisii Senecioneae PD 10 - Cuena-Lombraña et al., 2020

Senecio rigidus Senecioneae PD - - Brown & Botha 2004

Senecio teneriffae Senecioneae PD room? - Gilmer & Kadereit, 1989

Senecio umbellatus Senecioneae PD - - Brown & Botha 2004

Senecio vulgaris Senecioneae PD 9-13 L Hilton, 1983; Ren & Abbott, 1991

Siemssenia capillaris Gnaphalieae PD g.h. - Kullmann, 1982

Silybum marianum Cynareae PD 15, 20 L>D Monemizadeh et al., 2021

Solenogyne domenii Astereae PD 20 L>D Morgan & Lunt, 1994

Sonchus pinnatus Cichorieae PD 23 - Pita, 1996

Sonchus tenerrimus Cichorieae PD 12/2, 15/5 - Schütz, 1999

Staehelina dubia Cynareae ND 15 - Luna et al., 2008b

Stizolophus balsamita Cynareae PD - - Rosbakh et al., 2020

Taraxacum megalorrizon Cichorieae PD 15-20 - Rosbakh et al., 2020

Tolpis barbata Cichorieae ND 15, 20 - Frischie et al., 2019

Tolpis webbii Cichorieae PD 23 - Pita, 1996

Trichocline spathulata Mutisieae PD g.h. - Kullmann, 1982; Roche et al., 1997b

Triptilodiscus pygmaeus Gnaphalieae PD 25 - Gibson-Roy et al., 2007; Hodges et al., 2022

Ursinia anthemoides Anthemideae PD 15, D>L Schütz et al., 2002;

20/10 de Waal et al., 2016

Ursinia cakilefolia Anthemideae PD 20/10 - de Waal et al., 2016

Ursinia calenduliflora Anthemideae PD 20/10 - de Waal et al., 2016

Ursinia nana Anthemideae PD 20/10 - de Waal et al., 2016

Vittadinia cuneata Astereae PD 20/10 - Hodges et al., 2022

Vittadinia gracilis Astereae PD 20/10 - Hodges et al., 2022

Vittadinia muelleri Astereae PD 20/10 - Hodges et al., 2022

Vittadinia pterochaeta Astereae PD 15 - Hoyle et al., 2008b

Waitzia acuminata Gnaphalieae PD 24/13 L>D Kullmann, 1982;

20/10 Bunker, 1994a,b;

Dwyer & Erickson, 2016

Xanthium cavanillesii Heliantheae PD 35/25 - Martin & Carnahan, 1983

Xeranthemum annuum Cynareae PD 20 - Kazanci & Tavşanoglu, 2019

Xerochrysum Gnaphalieae PD 20/10 - Hodges et al., 2022

subundulatum

Table 10.10. Trees of moist warm temperature woodlands

Vernonanthura discolor Vernonieae ND 20 - Grzybowski et al., 2016

Table 10. 11. Shrubs of moist warm temperature woodlands

Acrisione denticulata Senecioneae ND 20/10 - Figueroa & Armesto, 2001

Table 10. 12. Vines of moist warm temperature woodland areas

Mutisia ilicifolia Mutisieae PD 10-12 - Kootenay, 2008

Table 10. 13. Herbaceous species of moist warm temperature woodland

Adenocaulon himalaicum Mutisieae PD autumn - Hiramatsu, 1973

Adenostemma lavenia Eupatorieae PD spring - Hiramatsu, 1973

Ainsliaea acerifolia Pertyeae PD 15, 20 - Park et al., 1999

Artemisia princeps Anthemideae ND 6-24 - Washitani & Masuda, 1990

Aster hispidus Astereae ND autumn, - Hiramatsu, 1973

spring

Atractylodes Cynareae PD 15 - Huang et al., 2000

macrocephala

Chrysopsis floridana Astereae PD spring - Lambert & Menges, 1996

Ligularia dentata Senecioneae PD 20 - Kootenay, 2008

Table 10.14. Trees of temperate deciduous forests.

Table 10.15. Shrubs of temperate deciduous forests

Table 10. 16. Vines of temperate deciduous forests

Baccharis angustifolia Astereae PD 30/20 - Rosbakh et al., 2020

Mikania scandens Eupatorieae PD 30/15 L=D Baskin et al. 1993

Table 10. 17. Herbaceous species of temperate deciduous forests

Jamesianthus Tageteae PD 35/20 L=D Baskin & Baskin,

alabamensis unpubl.

Lactuca floridana Cichorieae PD 30/15 L Baskin & Baskin,1988

Lactuca muralis Cichorieae ND 20/15 L>D Grime et al., 1981

Marshallia trinervia Helenieae PD - - Kootenay, 2008

Polymnia canadensis Polymnieae PD 25/15 L>D Bender et al., 2003

Prenanthes barbata Cichorieae PD 15/6 - Baskin et al., unpubl.

Saussurea calcicole Cynareae PD 15 - Guo et al., 2021

Smallanthus uvedalia Millerieae PD spring - Baskin et al., unpubl.

Solidago albopilosa Astereae PD 25/15 L>D Albrecht et al., 2020

Telekia speciosa Insuleae ND 20 - Kootenay, 2008

Table 10. 18. Herbaceous species (excluding aquatic plants) growing in nonforested areas within the region of temperate deciduous forests

Achillea ageratum Anthemideae. ND 20 - Kootenay, 2008

Ageratina luciae- Eupatorieae PD 25/15 L>DWalck et al. 1997a

bruniae

Ageratum altissima Eupatorieae PD 20 - Kootenay, 2008

Antennaria neglecta Gnaphalieae PD 20 - Kootenay, 2008

Antennaria Gnaphalieae PD 20 - Kootenay, 2008

plantaginifolia

Aster amellus Astereae PD 20 - Kootenay, 2008

Conoclinium Eupatorieae PD 20 - Kootenay, 2008

coelestinum

Echinacea paradoxa Heliantheae PD 18-22 - Kootenay, 2008

Echinacea Heliantheae PD 18-22 - Kootenay, 2008

tennesseensis

Eurybia divaricata Astereae PD 20/10, - Baskin & Baskin,

25/15 unpubl.

Heterotheca villosa Astereae ND 15, 20 - Baskin & Baskin, 1988

Helianthus Heliantheae PD 30/15 - Baskin & Baskin,

atrorubens unpubl.

Jacobaea incanus Senecioneae PD 20 - Kootenay, 2008

Packera paupercula Senecioneae PD 20 - Kootenay, 2008

Petasites albus Senecioneae PD - - Kootenay, 2008

Rudbeckia fulgida Heliantheae PD 20 - Kootenay, 2008

Rudbeckia hirta Heliantheae PD 20 - Kootenay, 2008

Rudbeckia maxima Heliantheae PD 20 - Kootenay, 2008

Rudbeckia nitida Heliantheae PD 20 - Kootenay, 2008

Senecio aureus Senecioneae PD 20 - Kootenay, 2008

Silphium asteriscus Heliantheae PD 20 - Kootenay, 2008

subsp. dentatum

Tanacetum Anthemideae PD 20 - Kootenay, 2008

corymbosum

Stokesia laevis Vernonieae PD - - Kootenay, 2008

Verbesina alternifolia Heliantheae PD 20 - Kootenay, 2008

Verbesina virginica Heliantheae PD 20 - Kootenay, 2008

Vernonia nove- Vernonieae PD 20 - Kootenay, 2008

boracensis

Table 10.19.Herbaceous weeds of nonforested areas (excluding aquatic species) within the

region of temperate deciduous forests

Achillea ageratifolia Anthemideae PD 20 - Kootenay, 2008

Achillea millefoliumAnthemideae ND 25/15, L>D Bostock, 1978

20/15 Pirbalouti &

Golparvar, 2006

Ageratina altissima Eupatorieae PD 25/15 L>D Walck et al., 1997a

Ambrosia Heliantheae PD 30/15 L> D Baskin & Baskin,

artemisiifolia 1980; Washitani &

Nishiyama, 1992;

Hsu, 2005;

Guillemin &

Chauvel, 2011;

Schutte et al., 2008,

2012

Ambrosia trifida Heliantheae PD 1 0-24, L>D Abul-Fatih &

30/14 Bazzaz, 1979;

Washitani &

Nishiyama, 1992;

Ballard et al., 1996;

Ruziev et al., 2020

Amphiachyris Astereae ND 30/15 L>D Baskin & Baskin,

dracunculoides 1983

Anthemis arvensis Anthemideae PD 30/20 - Ellis & Ilnicki, 1968

Anthemis cotula Anthemideae PD 20, 25 L>D Kay, 1971; Gealy et

al., 1985, 1994;

Rashid et al.,

2007

Anthemis ruthenica Anthemideae PD 25 - Martinkova et al.,

1997

Arctium minus Cynareae ND 30/15 L Baskin & Baskin, 1988

Arctium lappa Cynareae PD 5 - Martinkova et al., 1997;

Bhardwaj et al., 2010

Artemisia vulgaris Anthemideae PD 25, L>D Barney & Di Tommaso,

29 2003; Onen, 2006

Aster ageratoides Astereae PD 20, 25 L>D Kondo et al., 1992;

Kondo, 1995

Atractylodes japonica Cynareae ND 10, 15, - Jeon et al., 2013a

20

Balduina angustifolia Helenieae Campbell-Martínez et al.,

Northern populations PD 30/20, L>D 2021

35/20

Southern populations ND 27/15, L=D

29/19,

22/11

Bellis perennis Astereae PD 25 - Martinkova et al., 1997

Bidens alba Coreopsideae PD 25,30 - Ramirez et al., 2012

Bidens bipinnata Coreopsideae PD 22 - Dakshini & Aggarwal,

1974

Bidens cernua Coreopsideae PD 35/20 L=D Hogue, 1976; Baskin &

Baskin, 1988, unpubl.

Bidens connata Coreap PD 35/20 L=D Baskin & Baskin, unpubl.

Bidens frondosa Coreopsideae PD 25 - Martinkova et al., 1997

Bidens pilosa Coreopsideae ND 25/20 L>D Reddy & Singh, 1992;

30/25, Huang et al., 2015;

18/13 Ramirez et al., 2012

Bidens polylepsis Coreopsideae PD 35/20 L>D Baskin et al., 1995a

Bidens tripartita Coreopsideae PD 25, L>D Brändel, 2004b;

15/5 Benvenuti & Macchia,

1997

Boltonia decurrens Astereae PD 35/20 - Baskin & Baskin 2002

Carduus acanthoidesCynareae ND 30/20 L>D McCarty et al., 1969

Carduus nutans Cynareae ND 30/20, L>D McCarty et al., 1969;

15-20 McCarty & Scifres, 1969;

Medd & Lovett, 1978

Centaurea cyanus Cynareae PD - - Rosbakh et al., 2020

Centaurea jacea Cynareae PD 25/15 - Schütz, 1999

Chrysanthemum Anthemideae ND 30/15 L>D Povilaitis, 1956;

vulgare Baskin & Baskin, 1988

Cichorium intybus Cichorieae PD 30-35 - Rosbakh et al., 2020

Cirsium arvense Cynareae PD 30/20, L>D Williams, 1966; Roberts &

26 Chancellor, 1979; Wilson,

1979; Bochenek &

Gielwanowska, 2006;

Bochenek et al., 2009

Cirsium setidens Cynareae PD 15 - Seo et al., 2018

Cirsium vulgare Cynareae PD 20, - Michaux, 1989; Downs

20/10 & Cavers, 2000, 2002

Conyza canadensis Astereae ND 35/20, L>D Baskin & Baskin, 1988,

24/20, unpubl.; Main et al.,

20, 25, 2006; Nandula et al.,

spring, 2006; Yamashita &

autumn Guimaraes, 2011;

15, 30 Yuan & Wen, 2018

Corespsis Coreopsideae PD 25/10 - Kabat et al., 2007

leavenworthii

Coreopsis tinctoria Coreopsideae ND 25/15 L Baskin et al., unpubl.

Cotula coronopifolia Anthemideae ND 5, - van der Toorn, 1980; van

30/15 der Toorn & ten Hove,

1982

Crepidiastrum Cichorieae PD 15 - Seo et al., 2018

denticulatum

Crepis tectorum Cichorieae ND 10-35 L>D Andersen, 1968; Najda et

al., 1982

Doellingeria scaber Astereae PD 15 - Seo et al., 2018

Doronicum Senecioneae PD - D>L Rosbakh et al., 2020

grandiflorum

Echinops Cynareae ND 25 - Martinkova et al.,

sphaerocephalus 1997

Erechtites Senecioneae PD 35/20 L>D Baskin & Baskin, 1996

hieracifolia

Erigeron annuus Astereae ND 20 - Hayashi & Numata, 1967

Erigeron canadensis Astereae PD 20 L>D Rosbakh et al., 2020

Erigeron Astereae ND 35/20 L>D Baskin & Baskin, unpubl.

philadelphicus

Erigeron sumatrensis Astereae ND 20 - Hayashi & Numata, 1967

Filago arvensis Gnaphalieae PD 25 - Martinkova et al., 1997

Flaveria bidentis Tageteae ND 35 L=D Ren et al., 2008

Galinsoga parviflora Millerieae ND 35/20, L Baskin & Baskin, 1981;

20 Rai & Tripathi, 1982, 1984, 1987; Damalas, 2008

Gnaphalium Gnaphalieae PD - - Rosbakh et al, 2020

uliginosum

Helenium amarum Helenieae ND 30/15 L>D Baskin & Baskin, 1973

Helenium autumnale Helenieae PD 30/15 L Baskin & Baskin, unpubl.

Helianthus Heliantheae PD - - Kootenay, 2008

angustifolius

Helianthus annuus Heliantheae PD 30/15 L>D Baskin & Baskin, 1988,

Helianthus decapetalus Heliantheae PD - - Kootenay, 2008

Helianthus hirsutus Heliantheae PD 15/6 L Dell et al., 2021

Helianthus laetiflorus Heliantheae PD - - Kootenay, 2008

Helianthus mollis Heliantheae PD - - Kootenay, 2008

Helianthus tuberosus Heliantheae PD 25/15 - Puttha et al., 2014

Heterotheca Astereae

subaxillaris

Disc ND 20/10 L>D Baskin & Baskin, 1976

Ray PD 30/15 L Baskin & Baskin, 1976

Hieracium maculatum Cichorieae PD 20 L Kootenay, 2008

Hieracium sabaudum Cichorieae PD 20 L Rosbakh et al., 2020

Hypochaeris radicata  Cichorieae PD, 20/15, L, Grime et al., 1981;

ND 20/10 L=D Kondo et al., 1992;

Partzsch, 2009

Inula helenium Inuleae PD 20 - Rosbakh et al., 2020

Iva angustifolia Heliantheae PD spring - <https://rangeplants>. tamu.edu/plant/marshelder-narrowleaf-sumpweed/

Iva annua Heliantheae PD 30/15 L>D Baskin & Baskin, unpubl.

Iva xanthiifolia Heliantheae PD 20/10 L=D, Hunyadi et al., 1998;

L>D Hodi & Torma, 2002

Jacobaea vulgaris Senecioneae PD 20, - Schmidl, 1972; McEvoy,

30/25 1984; Bain, 1991

Jacobaea paludosus Senecioneae PD 20 L>D Rosbakh et al., 2020

Lactuca canadensis Cichorieae PD 30/15, L Marks & Prince, 1982;

25/15 - Baskin et al., unpubl.

Lactuca indica Cichorieae PD 15 - Seo et al., 2018

Lactuca muralis Cichorieae PD 20 L>D Rosbakh et al., 2020

Lactuca sativa Cichorieae PD - L>D Rosbakh et al., 2020

Lactuca serriola Cichorieae ND 20/10, L>D Martinkova et al., 1997;

25 Baskin & Baskin, unpubl.,

Lapsana communis Cichorieae PD 15/10 L>D Lonchamp & Gore, 1980;

Martinkova et al., 1997

Marshallia mohrii Helenieae PD 25/15 L>D Dell et al., 2019

Matricaria chamomilla Anthemideae PD 25 - Martinkova et al., 1997

Onopordum Cynareae PD 30/20 L>D Scifres & McCarty, 1969;

acanthium Qaderi et al., 2005

Packera tomentosa Senecioneae PD 25/15 - Leverett & Jolls, 2014

Pilosella aurantiaca Cichorieae PD 22 - Stergios, 1976; Brumback, 1985

Pilosella caespitosa Cichorieae PD 30/20 L>D Panebianco & Willemsen,

1976

Pilosella echioides Cichorieae ND 25/15 - Schütz, 1999

Pseudognaphalium Gnaphalieae ND 20/10 L Baskin & Baskin, unpubl.

obtusifolium

Rudbeckia laciniata Heliantheae PD 25, L>D Kondo et al., 2014

30/20,

35/25

Senecio erucifolius Senecioneae PD 25/5 - Otzen & Doornbos, 1980

Senecio sylvaticus Senecioneae ND 20/10 L Baskin et al., unpubl

Senecio viscosus Senecioneae PD 25 - Martinkova et al., 1997

Senecio vulgaris Senecioneae ND 10, 15 L>D Popay & Roberts,

20/10 1970a,b; Figueroa et al.,

2007; Lutman et al., 2008;

Ndihokubwayo et al.,

2016

Serinia oppositifolia Cichorieae PD 20/10 L Baskin et al., 1991

Synurus deltoides Cynareae PD 15 - Seo et al., 2018

Solidago altissima Astereae PD 30/15, L Baskin et al., 1993;

35/20, Walck et al., 1997b;

25/15 Weber, 2000

Solidago canadensis Astereae PD 25 - Martinkova et al., 1997

Solidago nemoralis Astereae PD 15/6- L Walck et al., 1997b

30/15

Solidago odora Asterea ND g.h. - Coffey & Kirkman, 2006

Sonchus arvensis Cichorieae PD 30/20 L=D Maguire & Overland,

1959; Pegtel, 1972, 1976

Sonchus asper Cichorieae PD 25 - Martinkova et al., 1997

Sonchus oleraceus Cichorieae ND g.h., L>D Pammel & Lummis, 1903;

20/12, Chauhan et al., 2006;

25, 30 Gresta et al., 2010

Symphyotrichum Astereae PD 30/15 L Baskin & Baskin, 1979

pilosum

Tanacetum Anthemideae ND 23 - Ilinkin et al., 2020

cinerariifolium

Tanacetum vulgare Anthemideae PD 25 - Martinkova et al., 1997

Taraxacum Cichorieae ND 20,10, L>D Maguire & Overland,

camplodes 10-18, 1959; Mezynski &

25 Cole,1974; Washitani,

1984; Letchamo &

Gosselin, 1996

Taraxacum Cichorieae ND 6-16, D>L Washitani & Ogawa,

platycarpum 15, 20 1989; Jeon et al., 2010

Tragopogon dubius Cichorieae PD 30, 35 - Rosbakh et al., 2020

Tragopogon pratensis Cichorieae ND 20, - Schütz, 1999; Jorritsma-

25/15 Wienk et al., 2007

Tripleurospermum Anthemideae PD 15/10, L>D, L Lonchamp & Gora, 1980;

maritimum 19, 20/10 Kazinczi & Hunyadi, 1995;

Bochenek et al., 2010

Tussilago farfara Senecioneae ND 25/15 L=D Robocker, 1977; Baskin &

Baskin, unpubl.

Vernonia angustifolia Vernonieae PD g.h. - Coffey & Kirkman, 2006

Vernonia gigantea Vernonieae PD 20 - Kootenay, 2008

Xanthium orientale Heliantheae PD 35/25 - Martin & Carnahan, 1983

Xanthium orientale Heliantheae PD 35/25 - Martin & Carnahan, 1983

subsp. italicum

Xanthium pungens Heliantheae PD 23 L>D Esashi & Leopold, 1968; Esashi et al., 1986

Xanthium Heliantheae PD 35, 40 L>D Arthur, 1895; Pammel & strumarium Lummis, 1903; Love & Dansereau, 1959; Esashi & Leopold, 1968; Norsworthy & Oliveira, 2007a,b

Table 10. 21. Trees of temperate zone steppes and grasslands

Table 10. 22. Shrubs of temperate zone steppes and grasslands

Artemisia campestris Anthemideae PD 20/10 D>L Tobe et al., 2006

subsp. inodora

Artemisia cana Anthemideae ND 10 - Romo & Young, 2002

Artemisia Anthemideae PD 20 - Kootenay, 2008

chamaemelifolia

Artemisia ordosica Anthemideae PD 25/15, D>L, Zheng et al., 2003,

20, L=D 2005a; Tobe et

20/10 al., 2006; Lai

et al., 2010

Artemisia santolinifolia Anthemideae ND 20/10 - Wesche et al., 2006

Artemisia scoparia Anthemideae PD 28/16 - Liu et al., 2004

Artemisia sieversiana Anthemideae ND 28/16 - Liu et al., 2004

Artemisia Anthemideae PD 20/10, D>L Huang & Gutterman,

sphaerocephala 25/15, 1999b; Zheng et al.,

20 2003, 2005a, b; Tobe et

al., 2006; Lai et al.,

2010; Zeng et al., 2010

Artemisia tridentata Anthemideae PD g.h. - Kelly & McKinney,

subsp. arbusula 2020

Grindelia ventanensis Astereae ND 20/15 - Negrin & Zalba, 2008

Gutierrezia solbrigii Astereae ND 20/10 - Masini et al., 2016

Ianthopappus Hyalideae ND - Roque & Hind, 2001

corymbosus

Senecio bracteolatus Senecioneae PD 18/5 - Gonzalez & Ghermandi,

2012

Senecio subulatus Senecioneae ND 20/10 - Masini et al., 2016

Stenachaenium Inuleae ND 20 - Noya et al., 2013

megapotamicum

Trixis praestans Mutisieae PD 25/15 - Bressi, 2016

Table 10. 23. Vines of temperate zone steppes and grasslands

Table 10. 24. Forbs of temperate zone steppes and grasslands

Achyrocline satureioides Gnaphalieae PD 20, 25 - Ikuta & Barros, 1996;

Marques & de Barros,

1999

Antennaria howellii Gnaphalieae PD 20 - Kootenay, 2008

Antennaria parvifolia Gnaphalieae PD 20 - Kootenay, 2008

Arnica chamissonis Madieae PD 20 - Balabanova et al., 2013

Arnoglossum Senecioneae PD 18-21 - Greene & Curtis, 1950

atriplicifolium

Aster amellus Astereae ND *- -* Maškováš & Poschlod,

2022

Aster linosyris Astereae PD 20 - Kootenay, 2008

Artemisia campestris Anthemideae PD 22/15 - Woosaree & James,

2004

Baccharis trimera Astereae PD 20 L>D Ferreira et al., 2001

Bidens frondosa Coreopsideae PD 20/10 - Guerrant & Raven,

1999

Blepharizonia plumosa Madieae PD garden - Gregory et al., 2001

Boltonia latisquamia Astereae PD 20 - Kootenay, 2008

Brickellia eupatorioides Eupatorieae PD 18-21 - Greene & Curtis,

1950

Carlina acanthifolia Cynareae PD 20 - Kootenay, 2008

Carlina vulgaris Cynareae ND - - Mašková & Poschlod,

2022

Cirsium canescens Cynareae PD spring - Lamp & McCarty,

1981

Cirsium acaule Cynareae ND - - Mašková & Poschlod,

2022

Cirsium flodmanii Cynareae PD 20/10, - Sullivan & Daley,

30/20 1981; Wilson &

McCarty, 1984

Cirsium pumilum var. Cynareae PD - Sullivan & Daley,

hillii 1981

Coreopsis lanceolata Coreopsideae PD spring, - Banovetz &

g.h., 25 Schneiner, 1994;

Diboll, 2004;

Hitchmough et al.,

2004

Coreopsis palmata Coreopsideae PD 24 - Voigt, 1977

Coreopsis tripteris Coreopsideae PD spring - Sullivan & Daley,

1981; Diboll, 2004

Doronicum pardalinches Senecioneae PD 20 - Kootenay, 2008

Echinacea angustifolia Heliantheae PD 20/10, L>D Baskin et al.,

25 1992a; Chuanren

et al., 2004;

Romero et al.,

2005

Echinacea pallida Heliantheae PD 25, L>D Albrecht & Smith-

20.6, Jochum, 1990;

g.h. Diboll, 2004;

Hassell et al.,

2004; Hitchmough

et al., 2004;

Romero et al., 2005

Echinacea purpurea Heliantheae PD 20, - Bratcher et al.,

22.2 1993; Hassell et

al., 2004;

Hitchmough et al.,

2004; Romero et

al., 2005

Eclipta prostrata Heliantheae ND 30/20 L>D Ferreira et al.,

2001

Elephantopus mollis Vernonieae PD 20 L>D Ferreira et al.,

2001

Erigeron decumbens Astereae PD 25/10 - Kayne &

Kuykendall, 2001

Eriophyllum lanatum Madieae PD 20/10 - Guerrant & Raven,

1999; Russell,

2011

Eupatorium casarettoi Eupatorieae ND 20 L>D Ferreira et al.,

2001

Eupatorium maculatum Eupatorieae PD 20/10 - Ahmad &

Hitchough, 2007

Eupatorium perfoliatum Eupatorieae PD g.h. - Diboll, 2004

Eupatorium purpureum Eupatorieae PD 20/10 L>D Ferreira et al.,

2001; Diboll, 2004

Euthamia graminifolia Astereae PD - - https://www.

wildflower.org/plants/result.php?id\_plant=EUGR5

Eutrochium fistulosum Eupatorieae PD spring - Baskin & Baskin,

unpubl.

Grindelia camporum Astereae PD 10, 15, L>D McLaughlin &

20 Linker, 1987

Grindelia integrifolia Astereae PD 20/10 - Guerrant & Raven,

1999

Grindelia squarrosa Astereae PD 22, L>D McDonough,

25/20 1975; Smreciu et

al., 1988

Hasteola suaveolens Senecioneae PD - - Sullivan & Daley,

1981

Helianthus Heliantheae PD g.h - Sullivan & Daley,

grossesserratus 1981; Diboll, 2004

Helianthus hirsutus Heliantheae PD g.h. - Diboll, 2004

Helianthus laevigatus Heliantheae PD 24 - Voigt, 1977

Helianthus maximiliani Heliantheae PD 30/15, L=D Owens & Call,

20 1985; Bratcher et

al., 1993; Baskin

et al., 1998

Helianthus occidentalis Heliantheae PD g.h. - Diboll, 2004

Helianthus pauciflorus Heliantheae PD - - Sullivan & Daley,

1981; Kootenay,

2009

Helianthus petiolaris Heliantheae PD 21 - Tolstead, 1941

Helianthus Heliantheae PD 22 - Smreciu et al.,

subrhombiodeus 1988

Heliopsis helianthoides Heliantheae PD g.h., - Sullivan & Daley,

25 1981; Diboll, 2004;

Zlesak, 2007

Heteropappus altaicus Astereae PD 20-25 - Borisova, 1994

Hieracium longipilum Cichorieae PD 30/15 - Sullivan & Daley,

1981; Baskin &

Baskin, unpubl.

Ionactis linariifolius Astereae PD - - Sullivan & Daley,

1981

Jurinea cyanoides Cynareae PD - - Kootenay, 2008

Jurinea mollis Cynareae PD - - Kootenay, 2008

Krigia biflora Cichorieae PD - - Kootenay, 2008

Lactuca ludoviciana Cichorieae PD - - Sullivan & Daley,

1981

Lasthenia glaberrima Madieae PD 20/10 - Guerrant & Raven,

1999

Leontodon rigens Cichorieae PD 20 - Kootenay, 2008

Liatris aspera Eupatorieae PD 33/19 - Salac & Hesse,

1975

Liatris cylindricea Eupatorieae PD 18-21 - Greene & Curtis,

1950

Liatris elegans Eupatorieae PD - - Sullivan & Daley,

1981

Liatris ligulistylis Eupatorieae PD 18-21 - Greene & Curtis,

1950

Liatris mucronata Eupatorieae PD 18-22 - Kootenay, 2008

Liatris punctata Eupatorieae PD - - Sullivan & Daley,

1981; Diboll, 2004

Liatris pycnostachya Eupatorieae PD 33/19 - Salac & Hesse,

1975; Hitchmough

et al., 2004

Liatris scariosa Eupatorieae PD g.h. - Diboll, 2004

Liatris spicata Eupatorieae PD 20 - Parks & Boyle,

2002

Ligularia fischeri Senecioneae PD 10, 15 - Jeon et al., 2013b;

Lee et al., 2018

Madia elegans Madieae PD 20/10 - Guerrant & Raven, 1999

Madia gracilis Madieae PD g.h. - Russell, 2011

Madia sativa Madieae PD 20/10 - Guerrant & Raven,

1999; Cavieres &

Sierra-Almeida,

2018

Marshallia caespitosa Helenieae PD - - Sullivan & Daley,

1981

Microseris laciniata Cichorieae PD 20/10 - Guerrant & Raven,

1999

Mikania cordifolia Eupatorieae PD 20 L>D Ferreira et al.,

2001

Nothocalais cuspidata Cichorieae PD 20 - Kootenay, 2008

Parthenium integrifolium Heliantheae PD 18-21 - Greene & Curtis, 1950

Prenanthes aspera Cichorieae PD - - Sullivan & Daley,

1981

Prenanthes racemosa Cichorieae PD 18-21 - Greene & Curtis, 1950

Pyrrocoma racemosa Astereae PD 20/10 - Guerrant & Raven,

1999

Ratibida columinifera Heliantheae PD 21 - Tolstead, 1941

Ratibida pinnata Heliantheae PD 18-21 - Greene & Curtis,

1950; Hitchmough

et al., 2004

Rudbeckia subtomentosa Heliantheae PD spring - Sullivan & Daley,

1981; Hitchmough

et al., 2004

Saussurea saichanensis Cynareae ND 20/10 - Wesche et al.,

2006

Schlechtendalia Barnadesiese ND 20 - Lattuda et al.,

luzulaefolia 2012

Senecio heterotrichius Senecioneae PD 25 L>D Ferreira et al.,

2001

Senecio oxyphyllus Senecioneae PD 20 L>D Ferreira et al.,

2001

Senecio plattensis Senecioneae PD - - Sullivan & Daley,

1981

Senecio selloi Senecioneae PD 25 L>D Ferreira et al.,

2001

Serratula centauroides Cynareae ND 20-25 - Borisova, 1994

Silphium integrifolium Heliantheae PD g.h., - Diboll, 2004;

20/10 Ahmad &

Hitchmough, 2007

Silphium laciniatum Heliantheae PD 18-21 - Greene & Curtis,

1950; Baderscher, 1985

Silphium perfoliatum Heliantheae PD 18-21 - Greene & Curtis,

1950

Silphium Heliantheae PD 18-21 - Greene & Curtis,

terebinthinaceum 1950

Solidago gigantea Astereae PD 30/20 - Sullivan & Daley,

1981; Bochenek et

al., 2016

Solidago juncea Astereae PD - - Sullivan & Daley,

1981

Solidago missouriensis Astereae PD - - Sullivan & Daley,

1981

Solidago ohioensis Astereae PD g.h . - Diboll, 2004

Solidago petiolaris Astereae PD 20 - Bratcher et al.,

1993

Solidago riddellii Astereae PD g.h . - Diboll, 2004

Solidago rigida Astereae PD 22 - Smreciu et al.,

1988; Hitchmough

et al., 2004

Solidago speciosa Astereae PD 20/10 - Sullivan & Daley,

1981; Ahmad &

Hitchmough, 2007

Stenachaenium Inuleae ND 25/15 D>L Ferreira et al.,

campestre 2001

Symphyotrichum Astereae PD spring - Jones, 1978;

cordifolium Sullivan &Daley,

1981

Symphyotrichum hallii Astereae PD 20/10 - Guerrant & Raven,

1999

Symphyotrichum laeve Astereae PD 20/10 - Ahmad &

Hitchough, 2007

Symphyotrichum Astereae PD 20/10 - Ahmad &

novae-angliae Hitchough, 2007

Symphyotrichum Astereae PD - - Sullivan & Daley

oblongifolius 1981

Symphyotrichum Astereae PD spring, - Jones, 1978;

oolentangiense 20/10 Sullivan & Daley,

1981; Diboll, 2004;

Ahmad &

Hitchmough, 2007

Tagetes minuta Tageteae ND 25/15 D>L Ferreira et al.,

2001

Tanacetum balsamita Anthemideae PD 20 - Kootenay, 2008

Tanacetum coccineum Anthemideae PD 20 - Kootenay, 2008

Taraxacum dealbatum Cichorieae ND 20-25 - Borisova, 1994

Townsendia exscapa Astereae PD 22/15 - Woosaree &

James, 2004

Trixis praestans Mutisieae PD 25 L>D Ferreira et al.,

2001

Vernonia arkansana Vernonieae PD 20 - Kootenay, 2008

Vernonia baldwinii Vernonieae PD 20 - Kootenay, 2008

Vernonia fasciculata Vernonieae PD g.h. - Sullivan & Daley,

1981; Diboll, 2004

Vernonia missourica Vernonieae PD 20 - Bratcher et al.,

1993

Vernonanthura nudiflora Vernonieae PD 20 L>D Ferreira et al.,

2001

Viguiera dentata Heliantheae PD 20 - Kootenay, 2008

Xanthium sibiricum Heliantheae PD 28/16, - Li et al., 2004 ; Liu 20 et al., 2004

Table 10. 27. Weeds of temperate zone steppes or grassland areas

Artemisia absinthium Anthemideae PD 20/10, L>D Maw et al., 1985

30/10

Artemisia biennis Anthemideae PD 37/20, - Kegode et al.,

37/25 2010

Artemisia frigida Anthemideae PD 20/10, L>D, Wilson, 1982

10 L=D Bai & Romo, 1994; Bai et al., 1996; Ronnenberg et al., 2007

Artemisia nova Anthemideae PD - - Deitschman, 1974

Centaurea diffusa Cynareae PD 25/10, - Meiman et al., 2009;

25/5 Clements et al., 2010

Centaurea stoebe Cynareae PD 20 - Eddleman & Romo, 1988

Chondrilla juncea Cichorieae PD 11 L=D Panetta, 1988

Crupina vulgaris Cynareae PD 15/4, - Patterson &

10 Mortensen, 1985; Roché et al., 1997a

Table 10.28. Shrubs cold deserts

Artemisia skorniakovii Anthemideae PD 14-17 - Sveshnikova, 1948

Artemisia tridentata Anthemideae PD 18.5 L=D Weldon et al., 1959;

L>D Deitschman, 1974; Sabo

et al., 1979

Baccharis genistelloides Astereae PD 23 - Sosa & Fernandez, 2000

subsp. crispa

Chrysothamnus Astereae PD 25 - Kildisheva et al.

viscidiflorus 2019b

Ericameria Astereae PD 30/15 L=D, Sabo et al., 1979;

nauseosus L>D Khan et al., 1987; Dodd & Donovan, 1999

Gutierrezia sarothrae Astereae PD, ND 16-21, - Kruse, 1970; Wood et g.h. al., 1997

Seriphidium Anthemideae PD 20/10, - Bademuqiqige et

transiliense 25/15 al.,2018

Table 10. 29. Herbaceous species of temperate semideserts and deserts

Agoseris heterophylla Cichorieae PD 5, 10 - Kildisheva et al., 2019b

Arnica mollis Madieae PD 15, 20 - Kildisheva et al.,

2019a,b

Artemisia desertorum Anthemideae PD 20/5 L>D Wang et al., 2009

Artemisia macrocephala Anthemideae PD 14-17 - Sveshnikova, 1948

Artemisia scoparia Anthemideae PD 28/16 - Li et al., 2006

Artemisia sieversiana Anthemideae ND 28/16 - Li et al., 2006

Balsamorhiza hookeri Heliantheae PD 20 - Kootenay, 2008

Balsamorhiza sagitata Heliantheae PD 10 - Young & Evans, 1979

Blepharipappus scaber Madieae PD 15 L>D Forbis, 2010

Chaenactis douglasii Chaenactideae PD 15, - Leger & Barga, 2015;

20/10 Gucker & Shaw, 2018;

Kildisheva et al., 2019a

Cirsium setosum Cynareae PD 20/5, L>D Wang et al., 2007,

25/5 2009

Cousinia affinis Cynareae PD 25/10, - Liu et al., 2013

35/20

Crepis acuminata Cichorieae PD 15, 20 - Kildisheva et al., 2019a,b

Crepis intermedia Cichorieae PD 15 - Barga et al., 2017

Dieteria canescens Asterese PD 20/10, - Seglias et al., 2018,

25/15 2020

Echinops gmelinii Cynareae PD 30/15 D>L Nur et al., 2014;

Wang et al., 2018

Enceliopsis nudicaulis Heliantheae ND 15, 20 - Kildisheva et al.,

2019b

Epilasia acrolasia Cichorieae PD 20/10 L=D Nur et al., 2014

Erigeron linearis Astereae PD 20 - Kildisheva et al.,

2019b

Erigeron pumilus Astereae PD 20/10 - Kildisheva et al.,

2019a

Garhadiolus papposus Cichorieae PD 15/2, L>D Sun et al., 2009

20/10

Gutierrezia sarothrae Astereae ND g.h. - Wood et al., 1997

Heliomeris multiflora Heliantheae PD 20/10, - Seglias et al., 2018

25/15 2020

Heteracia szovitsii Cichorieae PD 5/2, 15/2 L>D Cheng & Tan, 2009;

Lu et al., 2020

Heterotheca villosa Astereae ND 20/10, - Seglias et al., 2018

25/15

Inula racemosa Inuleae PD 25 L Sharma & Sharma,

2010

Ixeridium gramineum Cichorieae ND 20/5, D>L Wang et al., 2007,

25/5 2009

Koelpinia linearis Cichorieae PD 5/2 L=D Nur et al., 2014

Madia glomerata Madieae PD - - Rosbakh et al.,

2020

Mulgedium tataricum Cichorieae PD 20/5, D>L Wang et al., 2007,

25/5 2009

Packera multilobata Senecioneae PD 20/10, - Seglias et al., 2018

25/15 2020

Porophyllum gracile Tageteae ND nur. - Everett, 2012

Scorzonera pusilla Cichorieae PD 4, 10/4 L=D Tang et al., 2009

Taraxacum borealisinense Cichorieae PD 20/5 L>D Wang et al., 2009

Taraxacum mongolicum Cichorieae ND 20/5, L=D Wang et al., 2007,

25/5 2009

Wyethia amplexicaulisHeliantheae PD 25/10 - Young & Evans,

1979

Wyethia helianthoides Heliantheae PD - - Kildisheva et al., 2019b

Table 10. 30. Trees of boreal and north-temperate subalpine forests

Table 10. 31. Shrubs of forested and nonforested areas in the borealand north temperate

subalpine regions

Artemisia dubia Anthemideae PD 20/5 - Liu et al., 2011

Aster poliothamnus Astereae PD 20/5 D>L Wang et al, 2009

Table 10. 32. Herbaceous species of forested and nonforested areas in the boreal and north-

temperate subalpine regions

Achillea acuminata Anthemideae PD 20/5 - Liu et al., 2011

Achillea alpina Anthemideae ND 20 - Kootenay, 2008

Adenocaulon Mutisieae PD 20/5 - Liu et al., 2011

himalaicum

Adenostyles alpina Senecioneae PD 20 - Kootenay, 2008

Ajania myriantha Anthemideae PD 20/5 - Liu et al., 2011

Ajania salicifolia Anthemideae ND 20/5 - Liu et al., 2011

Ajania tenuifolia Athemideae PD 20/5 - Liu et al., 2011

Anaphalis Gnaphalieae PD 20/5 - Liu et al., 2011

aureopunctata

Anaphalis bicolor Gnaphalieae ND 20/5 - Liu et al., 2011

Anaphalis flavescens Gnaphalieae PD 20/5 - Liu et al., 2011

Anaphalis hancockii Gnaphalieae ND 20/5 - Liu et al., 2011

Anaphalis lactea Gnaphalieae ND 20/5 - Liu et al., 2011

Anaphalis latialata Gnaphalieae ND 20/5 - Liu et al., 2011

Anaphalis margaritacea Gnaphalieae PD 25/10 L>D Tsuyuzaki & Miyoshi,

20/5 2009; Liu et al., 2011

Antennaria carpatica Gnaphalieae PD 20 - Kootenay, 2008

Arnica cordifolia Madieae PD 23/13 - Luna et al., 2008a

Artemisia anethoides Anthemideae PD 20/5 - Liu et al., 2011

Artemisia argyi Anthemideae PD 20/5 - Liu et al., 2011

Artemisia borealis Anthemideae ND 22-28 - Voronkova et al., 2011

Artemisia desertorum Anthemideae PD 20/5 - Liu et al., 2011

Artemisia dubia Anthemideae PD 20/5 - Liu et al., 2011

Artemisia hedinii Anthemideae ND 20/5 - Liu et al., 2011

Artemisia japonica Anthemideae ND 20/5 - Liu et al., 2011

Artemisia margaritacea Anthemideae ND 20/5 - Liu et al., 2011

Artemisia mongolica Anthemideae ND 20/5 - Liu et al., 2011

Artemisia montana Anthemideae PD 25/10 L>D Tsuyuzaki & Miyoshi,

2009

Artemisia phaeolepis Anthemideae ND summer - Cao et al., 2018

Artemisia roxburghiana Anthemideae PD 20/5 - Liu et al., 2011

Artemisia sacrorum Anthemideae ND 20/5 - Liu et al., 2011

Artemisia sieversiana Anthemideae PD 20/5 - Liu et al., 2011

Artemisia vestita Anthemideae PD 20/5 - Liu et al., 2011

Aster ageratoides Astereae PD 20/5 - Liu et al., 2011

Aster albescens Astereae ND 20/5 - Liu et al., 2011

Aster diplostephioides Astereae ND 20/5 - Liu et al., 2011

Aster farreri Astereae PD 20 - Kootenay, 2008

Aster flaccidus Astereae PD 20/5 - Liu et al., 2011

Aster glehni Astereae ND 20, 25 - Choi et al., 2003

Aster maackii Astereae PD 25 - Guo et al., 2021

Aster poliothamnus Astereae PD 20/5 - Liu et al., 2011

Aster souliei Astereae PD 20/5 - Liu et al., 2011

Aster yunnanensis Astereae ND 20/5 - Liu et al., 2011

Balsamorhiza sagittata Heliantheae PD 20/10 - Mogensen et al., 2001

Bidens parviflora Coreopsideae ND 20/5 - Liu et al., 2011

Bidens radiata Coreopsideae PD - L>D Rosbakh et al., 2020

Buphthalmum Inuleae ND 20 - Kootenay, 2008

salicifolium

Cancrinia maximowiczi Anthemideae ND 20/5 - Liu et al., 2011

Carpesium cernuum Inuleae PD 20/5 - Liu et al., 2011

Carpesium lipskyi Inuleae PD 20/5 - Liu et al., 2011

Carpesium Inuleae PD 20/5 - Liu et al., 2011

trachelifolium

Celmisia semicordata Astereae PD 5 - Kootenay, 2008

Chaetoseris roborowskii Cichorieae PD 20/5 - Liu et al., 2011

Chrysanthemum Anthemideae PD 20/5 - Liu et al., 2011

przewalskii

Cirsium arvense Cynareae PD 20/5 - Liu et al., 2011

Cirsium foliosum Cynareae PD 2 - McDonough, 1969

Cirsium lanatum Cynareae PD 20/5 - Liu et al., 2011

Cirsium leo Cynareae PD -- - Liu et al., 2011

Cremanthodium Senecioneae PD 20/5 - Liu et al., 2011

brunneopilosum

Cremanthodium lineare Senecioneae ND 20/5 - Liu et al., 2011

Crepis pyrenica Cichorieae PD 20 - Kootenay, 2008

Doronicum austriacum Senecioneae PD 20 - Kootenay, 2008

Doronicum clusii Senecioneae PD 15/3 - Mondoni et al., 2012

Doronicum Senecioneae PD 20/5 - Liu et al., 2011

stenoglossum

Erigeron acer Astereae ND 20/5 - Liu et al., 2011

Erigeron droebachensis Astereae PD 20 L>D Rosbakh et al., 2020

Erigeron kamtschaticus Astereae ND 22-28 - Voronkova et al., 2011

Erigeron thunbergii Astereae ND 22-28 - Voronkova et al., 2011

Eupatorium chinense Eupatorieae PD 25/10 L>D Tsuyuzaki & Miyoshi, 2009

Eupatorium purpureum Eupatorieae PD g.h. - Nichols, 1934

Gerbera anandria Mutisieae ND 20/5 - Liu et al., 2011

Heteropappus Astereae PD 20/5 - Liu et al., 2011

crenatifolius

Heteropappus gouldii Astereae PD 20/5 - Liu et al., 2011

Hieracium villosum Cichorieae PD 20 - Kootenay, 2008

Hymenoxys hoopesii Helenieae PD 20 - Kootenay, 2008

Inula acaulis Inuleae PD 20 - Kootenay, 2008

Inula hirta Inuleae PD 20 - Kootenay, 2008

Inula orientalis Inuleae PD 20 - Kootenay, 2008

Kalimeris mongolica Astereae PD 20/5 - Liu et al., 2011

Lactuca muralis Cichorieae ND 10-24 L>D Grime et al., 1981

Leibnitzia nepalensis Mutisieae PD 20/5 - Liu et al., 2011

Leontopodium Gnaphalieae PD 20/5 - Liu et al., 2011

oculocephalic

Leontopodium Gnaphalieae PD 20/5 - Liu et al., 2011

dedekensii

Leontopodium Gnaphalieae PD 20/5 - Liu et al., 2011

leontopodioides

Leontopodium souliei Gnaphalieae PD 20/5 - Liu et al., 2011

Leucogenes grandiceps Inuleae PD 5 - Kootenay, 2008

Ligularia macrodonta Senecioneae PD - - Liu et al., 2011

Ligularia macrophylla Senecioneae PD 20 - Kootenay, 2008

Ligularia przewalskii Senecioneae ND 20/5 - Liu et al., 2011

Ligularia purdomii Senecioneae PD 20/5 - Liu et al., 2011

Ligularia sagitta Senecioneae PD 20/5 - Liu et al., 2011

Ligularia sibirica Senecioneae PD 15/6 L=D Budisavljevic et al., 2021

Ligularia veitchiana Senecioneae PD 20/5 - Liu et al., 2011

Ligularia virgaurea Senecioneae PD 15/5, - Wang et al., 2009; Liu et

20/5 al., 2011

Ligularia wilsoniana Senecioneae PD 20 - Kootenay, 2008

Olgaea tangutica Cynareae PD 20/5 - Liu et al., 2011

Parasenecio Senecioneae PD 20/5 - Liu et al., 2011

deltophyllus

Parasenecio Senecioneae ND 20/5 - Liu et al., 2011

roborowskii

Picris hieracioides Cichorieae PD 20/5 - Liu et al., 2011; Honda &

subsp. japonica Katoh, 2007

Picris hieraciolides Cichorieae ND 22-28 - Voronkova et al., 2011

subsp. kamtschatica

Prenanthes purpurea Cichorieae PD 20 L>D Rosbakh et al., 2020

Pyrethrum tatsienense Anthemideae ND 20/5 - Liu et al., 2011

Rhaponticum heleniium Cynareae PD 20 - Carasso et al., 2020

subsp. bicknellii

Rhaponticum scariosum Cynareae PD 15, 20 - Carasso et al., 2020

Rudbeckia occidentalis Heliantheae ND 22/17 - McDonough, 1969

Saussurea costus Cynareae PD 25 - Sharma et al., 2006

Saussurea globosa Cynareae PD 20/5 - Liu et al., 2011

Saussurea graminea Cynareae PD 20/5 - Liu et al., 2011

Saussurea hieracioides Cynareae PD 20/5 - Liu et al., 2011

Saussurea iodostegia Cynareae PD 20/5 - Liu et al., 2011

Saussurea japonica Cynareae ND 20/5 - Liu et al., 2011

Saussurea kansuensis Cynareae PD 20/5 - Liu et al., 2011

Saussurea macrota Cynareae ND 20/5 - Liu et al., 2011

Saussurea neofranchetii Cynareae PD 20/5 - Liu et al., 2011

Saussurea nigrescens Cynareae ND 20/5 - Liu et al., 2011

Saussurea oligantha Cynareae PD 20/5 - Liu et al., 2011

Saussurea parviflora Cynareae PD 20/5 - Liu et al., 2011

Saussurea Cynareae PD 20/5 - Liu et al., 2011

pinnatidentata

Saussurea przewalskii Cynareae PD 20/5 - Liu et al., 2011

Saussurea purpurascens Cynareae ND 20/5 - Liu et al., 2011

Saussurea stella Cynareae PD 20/5 - Liu et al., 2011

Saussurea subulisquama Cynareae PD 20/5 - Liu et al., 2011

Saussurea sylvatica Cynareae PD 20/5 - Liu et al., 2011

Saussurea ussurriensis Cynareae PD 20/5 - Liu et al., 2011

Saussurea variiloba Cynareae PD 20/5 - Liu et al., 2011

Scorzonera mongolica Cichorieae PD 20/5 - Liu et al., 2011

Senecio abrotanifolius Senecioneae PD 20 L>D Rosbakh et al., 2020

Senecio arguneesis Senecioneae PD 20/5 - Liu et al., 2011

Senecio cannabifolius Senecioneae PD 22-28 - Voronkova et al., 2011

Senecio densiserratus Senecioneae PD 20/5 - Liu et al., 2011

Senecio diversipinnus Senecioneae PD 20/5- - Liu et al., 2011

Seneciodubitabilis Senecioneae PD 20/5 - Liu et al., 2011

Senecio integerrimus Senecioneae PD 2 - McDonough, 1969

Senecio nemorensis Senecioneae PD 20 - Kootenay, 2008

Senecio serra Senecioneae PD 2 - McDonough, 1969

Senecio tianshanicus Senecioneae PD 20/5 - Liu et al., 2011

Serratula coronata Cynareae PD 20 - Rosbakh et al., 2020

Serratula strangulata Cynareae PD 20/5 - Liu et al., 2011

Sigesbeckia orientalis Millerieae PD 20 - Rosbakh et al., 2020

Sigesbeckia pubescens Millerieae PD 20/5 - Liu et al., 2011

Sinacalia tangutica Senecioneae PD 20/5 - Liu et al., 2011

Solidago virgaurea Astereae PD 25/10 L>D Tsuyuzaki & Miyoshi,

subsp. asiatica 2009

Taraxacum kok-saghzy Cichorieae PD - - Rosbakh et al., 2020

Taraxacum Cichorieae PD 20/5 - Liu et al., 2011

maurocarpum

Taraxacum mongolicum Cichorieae PD 20/5 - Liu et al., 2011

Telekia speciosissima Inuleae PD 25/15 L>D Brusa et al., 2007

Tephroseris integrifolia Senecioneae PD 20 - Kootenay, 2008

Xanthopappus Cynareae PD 20/5 - Liu et al., 2011

subacaulis

Table 10. 33. Shrubs and subshrubs of Northern and Southern Hemisphere

polar and alpine tundra vegetation

Celmisia walker Astereae PD 5 - Kootenay, 2008

Table 10. 34. Herbaceous species of Northern and Southern Hemisphere

polar and alpine tundra vegetation

Achillea erba-rotta Anthemideae PD 25/10, L Schwienbacher et al.,

20 2011; Aiello et al., 2017

Achillea atrata Anthemideae PD - L Rosbakh et al., 2020

Achillea lingulata Anthemideae ND - - Sapzhenkova et al., 1986

Achillea nana Anthemideae. PD 25/15 - Tudela-Isanta et al., 2017

Antennaria alpina Gnaphalieae ND 18 - Bonde, 1965a

Antennaria dioica Gnaphalieae ND 17/9 - Fossati, 1980

Antennaria friesiana Gnaphalieae PD 20 - Kootenay, 2008

Antennaria rosea Gnaphalieae ND 18 - Pelton, 1956

Arctanthemum arcticum Anthemideae PD 20 - Kootenay, 2008

Arnica griscomii subsp. Madieae PD 20 - Kootenay, 2008

frigida

Arnica montana Madieae PD 15/5, - Kootenay, 2008

25/15

Arnica unalaschcensis Madieae PD 20/10, L=D Shimono & Kudo, 2005 25/15

Artemisia arctica Anthemideae ND 18, - Bonde, 1965a; Voronkova

22-28 et al., 2011

Artemisia borealis Anthemideae ND 22-18 - Voronkova et al., 2011

Artemisia genipi Anthemideae PD 25/10 L Schwienbacher &

Erschbamer, 2002;

Kootenay, 2008;

Schwienbacher et al.,

2011

Artemisia glomerata Anthemideae ND 22-28 - Voronkova et al., 2008

Artemisia scopulorum Anthemideae ND 18 L>D Bliss, 1958; Bonde,

1965a; Chambers et al.,

1987

Artemisia tilesii Anthemideae ND 22 - Steshenko, 1966

Askellia pygmaea Cichorieae ND 22 - Bliss, 1958

Aster alpinus Astereae PD - - Sapzhenkova et al., 1986;

Tudela-Isanta et al., 2017

Aster pyrenaeus Astereae PD 20, L=D Torrico et al., 2011

25/15

Aster sibiricus Astereae ND 22 - Bliss, 1958

Brachyscome obovata Astereae ND 25/15 - Hoyle et al., 2015

Brachyscome stolonifera Astereae PD 25/15 - Hoyle et al., 2015

Brachyscome tenuiscapa Astereae ND 10, 15, - Sommerville et al., 2013

20, 25

Carduus defloratus Cynareae ND 20/10 - Zuur-Isler, 1982

Carlina acaulis Cynareae PD - - Sapzhenkova et al., 1986

Celmisia angustifolia Astereae PD 5 L>D Scott, 1975

Celmisia armstrongii Astereae PD 5 - Kootenay, 2008

Celmisia coriacea Astereae PD 5 L>D Scott, 1975

Celmisia costiniana Astereae PD 25/15 - Hoyle et al., 2015

Celmisia gracilenta Astereae PD 20 L>D Scott, 1975

Celmisia hookerii Astereae PD 5 - Kootenay, 2008

Celmisia spectabilis Astereae PD 5 - Kootenay, 2008

Celmisia traversii Astereae PD 5 - Kootenay, 2008

Chaetanthera euphrasioides Mutisieae ND 20/10 - Cavieres & Sierra-

Almeida, 2018

Chaetanthera microphylla Mutisieae ND 20/10 - Cavieres & Sierra-

Almeida, 2018

Cirsium leucopsis Cynareae PD 20 - Kirmizi et al., 2011

Coronidium scorpioides Gnaphalieae ND 10, 14, - Sommerville et al., 2013

20, 25

Coronidium waddelliae Gnaphalieae PD 15, 20 - Sommerville et al., 2013

Craspedia jamesii Gnaphalieae ND 25/15 - Hoyle et al., 2015

Craspedia lamicola Gnaphalieae ND 25/15 - Hoyle et al., 2015

Craspedia lanata Gnaphalieae PD 5 - Kootenay, 2008

Craspedia leucantha Gnaphalieae ND 25/15 - Hoyle et al., 2015

Cremanthodium ellisii Senecioneae ND 20 - Kootenay, 2008

Doronicum kamaonense Senecioneae PD 10, 25 - Semwal et al., 1983

Erigeron acris var. Astereae ND 22-28 - Voronkova et al., 2011

kamtschaticus

Erigeron andicola Astereae ND 20/10 - Cavieres & Sierra-

Almeida, 2018

Erigeron bellidioides Astereae ND 25/15 - Hoyle et al., 2015

Erigeron compositus Astereae PD 20 - Kaye, 1997

Erigeron nitidus Astereae ND 25/15 - Hoyle et al., 2015

Erigeron pinnatisectus Astereae ND 22 - Bliss, 1958; Bonde, 1965a

Erigeron purpuratus Astereae ND 22 - Bliss, 1958

Erigeron setosus Astereae ND 25/15 - Hoyle et al., 2015

Erigeron subtrinervis Astereae ND 20 - Kaye, 1997

Erigeron thunbergii Astereae ND 22-28 - Voronkova et al., 2011

Erigeron uniflorus Astereae ND 25/10 - Schwienbacher et al.,

2011

Euchiton involucratus Gnaphalieae ND 20, 25, - Sommerville et al., 2013

20/10

Gnaphalium supinum Gnaphalieae PD 20 - Fossati, 1980; Cummins &

Miller, 2000

Hieracium alpinum Cichorieae PD 17/9 - Fossati, 1980

Hieracium aurantiacum Cichorieae ND 22-28 - <https://www>.

fs.fed.us/database/feis/plants/forb/hieaur/all.html

Homogyne alpina Senecioneae PD 20/10 D>L Ludi, 1933; Zuur-Isler,

1982

Hymenoxys grandiflora Helenieae ND 18 - Bliss, 1958; Bonde, 1965a

Hypochaeris uniflora Chichorieae PD 20 - Kootenay, 2008

Jacobaea cannabifolia Senecioneae PD 22-28 - Voronkova et al., 2011

Jacobaea carniolicus Senecioneae PD 17/9 - Fossati, 1980

Jasonia cavanillesii Inuleae PD 30/20 - Fernández-Pascual et al.,

2017

Jurinea humilis Cynareae PD 14/4, Fernández-Pascual et al.,

22/12 2017

Lamyropsis microcephala Cynareae PD 25 - Mattana et al., 2012;

Picciau et al., 2019

Leontodon cantabricus Cichorieae PD 22/12, Fernández-Pascual et al., 30/20 2017

Leontodon hispidus Cichorieae PD 25/10 - Schwienbacher et al.,

2011; Tudela-Isanta et al.,

2017

Leontodon hyoseroides Cichorieae PD 20/10 - Zuur-Isler, 1982

Leontopodium nivale Gnaphalieae PD 17/9 - Fossati, 1980; Tudela-

subsp. alpinum Isanta et al., 2017

Leucanthemopsis alpina Anthemideae PD 20 - Kootenay, 2008

Leucanthemum gaudinii Anthemideae ND - - Sapzhenkova et al., 1986

Leucanthemum Anthemideae ND - - Sapzhenkova et al., 1986

rotundifolium

Leucochrysum alpinum Gnaphalieae ND 25/15 - Hoyle et al., 2015

Mutisia sinuata Mutisieae ND 20/10 - Cavieres & Sierra-

Almeida, 2018

Nassauvia pinnigera Nassauvieae ND 20/10 - Cavieres & Sierra-

Almeida, 2018

Petasites frigidus Senecioneae ND 22 - Bliss, 1958

Pilosella officinarum Cichorieae ND 25/15 - Tudela-Isanta et al., 2017

Pilosella vahlii Cichorieae ND 10, - Gimenez-Benavides et

15, 20 al., 2005

Pleurophyllum hookeri Astereae PD - - Bergstrom et al., 1997

Saussurea alpina Cynareae PD 20 - Cummins & Miller, 2000

Scorzoneroides helvetica Cichorieae PD 25/15 - Tudela-Isanta et al., 2017

Senecio doronicum Senecioneae PD 25/15 - Tudela-Isanta et al., 2017

Senecio olympicus Senecioneae PD 20/10 - Kirmizi et al., 2011

Serratula tinctoria Cynareae PD 25/15 - Tudela-Isanta et al., 2017

Solidago virgaurea Astereae ND 20/10 - Zuur-Isler, 1982

subsp. virgaurea

Solidago virgaurea Astereae PD 20/10 L>D Shimono & Kudo, 2005;

Tudela-Isanta et al., 2017

Tanacetum clusii Anthemideae ND - - Sapzhenkova et al., 1986

Tanacetum vulgare Anthemideae PD - - Sapzhenkova et al., 1986

Taraxacum arcticum Cichorieae ND room? - Eurola, 1972

subsp. alpinum

Tetraneuris acaulis Helenieae PD 8 - Bonde, 1965a, b

Tonestus pygmaeus Astereae ND 18 - Bonde, 1965a

Tripleurospermum pichleri Anthemideae PD 20 - Kirmizi et al., 2011

Xerochrysum Gnaphalieae PD 15, 20, - Sommerville et al., 2013

subundulatum 25,

20/10

Table 10. 35. Trees of north-temperate conifer-dominated montane forests

Table 30. 36. Shrubs of north-temperate conifer-dominated montane forests

Isocoma menziesii Astereae PD - - Emery, 1988

Table 10. 37. Herbaceous species of north-temperate conifer-dominated montane

Forests

Achillea pyrenaica Anthemideae ND 20 - Kootenay, 2008

Anaphalis margaritacea Gnaphalieae ND g.h. - Chandler, 2000

Helianthella Heliantheae PD 20 - Kootenay, 2008

quinquenervis

Klasea lycopifolia Cynareae PD 23 L>D Budisavljevic et al.,

2020

Raoulia australis Gnaphalieae PD - - Kootenay, 2008

Raoulia subsericea Gnaphalieae PD - - Kootenay, 2008

Raoulia tenuicaulis Gnaphalieae PD - - Kootenay, 2008

Table 10. 38. Trees of the woodland zone

Table 10. 39. Shrubs of the north-temperate woodland zone

Artemisia arbuscula Anthemideae PD 20 - Rosbakh et al., 2020

Artemisia frigida Anthemideae ND 24/14 L=D Sabo et al., 1979;

Heterotheca villosa Astereae ND - - Emery, 1988

Table 10.40. Herbaceous species of the north-temperate woodland zone

Balsamorhiza sagittata Heliantheae PD 20/10 - Mogensen et al.,

2001

Coreopsis bigelovii Coreopsideae PD - - Emery, 1988

Chapter 11

**Aquatics**

Bidens cernua Coreopsideae PD 30/20 L Hogue, 1976; Shipley

15/5 L>D & Parent, 1991;

Brändel, 2004b

Bidens tripartita Coreopsideae PD 30/20 - Shipley & Parent,

1991

Bidens laevis Coreopsideae PD 35/20 L>D Leck et al., 1994

Caesulia axillaris Inuleae PD 28 L Singh & Amritphale,

1992

Coreopsis rosea Coreopsideae PD 30/20 - Shipley & Parent,

1991

Eclipta prostrata Heliantheae PD 25, 30 L Wang et al., 2016;

30/15, Baskin et al., unpubl.

25/15

Eupatorium cannabinum Eupatorieae PD 25, L>D Brändel & Jensen, 15/5 2005

Eupatorium perfoliatum Eupatorieae PD 30/20 - Shipley & Parent, 1991

Gymnocoronis Eupatorieae ND 30/20 L Vivian Smith et al.,

15/5, 2005; Panetta,

spilanthoides 25/15 2009; Ardenghi

et al., 2016

Petasites hybridus Senecioneae ND 20/15 L=D Grime et al., 1981

Serratula tinctoria Cynareae PD 22/12 - Stammel et al., 2006

Sphaeranthus indicus Plucheeae PD August - Shetty, 1967

Symphyotrichum Astereae PD 20/10 L>D Galinato & van der

laurentianum Valk, 1986

Table 11.13. Salt marshes and salt deserts

**Shrubs**

Artemisia caerulescens Anthemideae PD 30, 25, - Bakker et al., 1985;

subsp. gallica 30 Bakker & de Vries, 1992

Artemisia stelleriana Anthemideae PD 25/20 - Ishikawa & Kachi, 2000;

Kootenay, 2008

Baccharis halimifolia Astereae PD 20/10 - Kootenay, 2008

**Herbs**

Artemisia fukudo Anthemideae PD 25/20 - Mariko et al., 1992

Tripolium pannonicum Astereae PD 15/10, - Mariko et al., 1992;

27/16 Shumway & Bertness,

1992

Nidorella ivifolia Astereae PD 18, L Panetta, 1979; Elsey-

27/21, Quirk et al., 2009

25/18

Cotula coronopifolia Anthemideae ND 30/15 - van der Toorn & ten

Hove, 1982

Iva annua Heliantheae PD 15 L=D Ungar & Hogan, 1970

Iva frutescens Heliantheae PD 27/16 - Shumway & Bertness,

1992

Jaumea carnosa Tageteae ND g.h.? - Kreiberg, 2000

Solidago sempervirens Astereae PD 27/16 - Shumway & Bertness, 1992

Table 11.15. Beaches, sea cliffs and foredunes

Arctotideaetheca populifolia Arctotideae PD g.h. - Knevel et al., 2002

Cirsium rhothophilum Cynareae PD 20/15 - Zedler et al., 1983

Inula crithmoides Inuleae PD 15 L Okusanya, 1979

Senecioneaeio crassiflorus Senecioneae PD 10 L>D Cordazzo & de Souza,

1993

Table 11.20. Psammophytes of nonsaline soils

**Shrubs**

Artemisia arenaria Anthemideae PD 20/10 L=D Tobe et al., 2006

Artemisia monosperma Anthemideae ND 15-20 - Huang & Gutterman,

1999a

Artemisia ordosica Anthemideae PD 20, - Huang & Gutterman,

25/15 2000; Tobe et al., 2006

Artemisia sphaerocephala Anthemideae PD 25, L=D Huang & Gutterman,

30/20 1999b; Zeng et al.,

2002; Tobe et al., 2006

**Herbs**

Cirsium pitcheri Cynareae PD 30/15, D>L Chen & Maun, 1998

25

Coreopsis lanceolata Coreopsideae PD 25 L>D Banovetz & Scheiner,

1994

Iva imbricata Heliantheae PD 25/15 L>D van der Valk, 1974;

Colosi & McCormick,

1978

Liatris ohlingerae Eupatorieae ND 28/19 - Weekley et al., 2008

Palafoxia lindenii Bahieae PD 32/20 L=D Martinez et al., 1992

Jacobaea vulgaris Senecioneae ND 20 L van der Meijden &

van Der Waals-Kooi,

1979

Solidago sempervirens Astereae PD 15/10 L>D van der Valk, 1974

a Temperature or temperature regime at which the highest percentage of cypselae germinated.

**References for Table S1**

Abdalla ST and McKelvie AD (1980) The interaction of chilling and gibberellic acid on the germination of seeds of ornamental plants. Seed Sci. & Technol. 8, 139-144.

Abul-Fatih HA and Bazzaz FA (1979) The biology of *Ambrosia trifida* L. II. Germination, emergence, growth and survival. New Phytol. 83, 817-827.

Adondakis S and Venable DL (2004) Dormancy and germination in a guild of Sonoran Desert annuals. Ecology 85, 2582-2590.

Afolayan AJ, Meyer JJM and Leeuwner DV (1997) Germination in *Helichrysum aureonitens* (Asteraceae): effects of temperature, light, gibberellic acid, scarification and smoke extract. S. Afr. J. Bot. 63, 22-24.

Agboola DA, Idowu, WF and Kadiri M (2006) Seed germination and seedling growth of the Mexican sunflower *Tithonia diversifolia* (Compositae) in Nigeria, Africa. Rev. Biol. Trop. 54, 395-402.

Aguado M, Martínez-Sánchez JJ, Reig-Armiñana J. García-Breojp FJ, Franco JA and Vicente MJ (2011) Morphology, anatomy and germination response of

heteromorphic achenes of *Anthemis chrysantha* J. Gay (Asteraceae), a critically

endangered species. Seed Sci. Res. **21**, 283-294.

Ahlawat AS and Dagar JC (1980) Effect of different pH, light qualities and some growth regulators on seed germination of *Bidens biternata* (Lour.) Merr. and Sherff. Indian For. 106, 617-620.

Ahmad H and Hitchmough JD (2007) Germination and emergence of understory and tall canopy forbs used in naturalistic sowing mixes. A comparison of performance *in vitro* [and in] the field. Seed Sci. & Technol. 35, 624-637.

Aiello N, Lombardo G, Giannì S, Saartezzini F and Fusani P (2017) The effect of cold

Stratification and of gibberellic acid on the seed germination of wild musk yarrow

[*Achillea erba-rotta* subsp. *moschata* (Wulfen) I. Richardson] populations. J. Appl.

Res. Med. Arom. Plants 7, 108-112.

Akinola JO, Larbi A, Farinu GO and Odunsi A. (2000) Seed treatment methods and duration effects on germination of wild sunflower. Exptl. Agric. 36, 63-69.

Albrecht J (ed.) (1993) Tree seed handbook of Kenya. GTZ Forestry Seed Centre Muguga, Nairobi.

Albrecht MA, Dell ND and Long QG (2020) Seed germination traits in the rare sandstone rockhouse endemic *Solidago albopilosa* (Asteraceae) J. Torrey Bot. Soc. 147, 172-184.

Albrecht ML and Smith-Jochum C (1990) Germination and establishment of Echinacea spp. (Compositae). Wildflower 3 (2), 6-11.

Aleman R, Ainsley P, Gibbs J, Tiver F and Jusaitis M (2011) Germination requirements of Brachyscome species in South Australia. S. Aust. Nat. 85, 71-75.

Aleman R, Jusaitis M, Gibbs J, Ainsley P and Tiver F (2015) Influence of seed dimorphism and provenance on seed morphology, dispersal, germination and seedling growth of *Brachyscome ciliaris* (Asteraceae). Aust. J. Bot. 63, 705-713.

Aleman R, Jusaitis M, Gibbs J, Ainsley P and Tiver F (2018) The influence of ethanol as a solvent on the gibberellic acid-induced germination of *Brachyscome* and *Allittia* (Asteraceae) seeds. Aust. J. Bot. 66, 101-107.

Andersen RN (1968) Germination and establishment of weeds for experimental purposes. W. F. Humphrey Press, Geneva.

Aráoz S, Joseau MJ and Hernández R (2016) Calidad fisica y fisologica de semillas de *Baccharis crispa* Sprengel y *Baccharis salicifolia* Ruiz & Pav. Para su domenstication. Rev. Cienc. For, 24, 59-69.

Arcamone JR and Jaureguiberry P (2018) Germination response of common annual and

perennial forbs to heat shock and smoke treatments in the Chaco Serrano, central

Argentina. Aust. Ecol. 43, 567-577.

Ardenghi NMG, Barcheri G, Ballerini C, Cauzzi P and Guzzon F (2016) *Gymnocoronis spilanthoides* (Asteraceae, Eupatorieae), a new naturalized and potentially

invasive aquatic alien in S Europe. Willdenowia 46, 265-273.

Arthur JC (1895) Delayed germination of cocklebur and other paired seeds. Proc. Soc.

Prom. Agric. Sci. 16, 70-79.

Auld BA and Martin PM (1975) The autecology of *Eupatorium adenophorum* Spreng. in

Australia. Weed Res. 15, 27-31.

Bademuqiqige ZS, Li P, Dong Y, Jiang S and Yang J (2018) The effect of harvest time

on seed germination characteristics of *Seriphidium transiliense* in northern

Xinjiang, China. Seed Sci. & Technol. 46, 139-147.

Badertscher AK (1985) The effect of stratification and scarification on the seeds of four prairie wildflowers. Newsl. Kansas Wildfl. Soc. 7(4), 12-20.

Bai Y and Romo T (1994) Germination of previously buried seeds of fringed sage (*Artemisia frigida*). Weed Sci. 42, 390-397.

Bai Y, Romo JT and Hou J (1996) Phytochrome action in seed germination of fringed sage (*Artemisia frigida*). Weed Sci. 44, 109-113.

Bain JF (1991) The biology of Canadian weeds. 96. *Senecio jacobaea* L. Can. J. Plant Sci. 71, 127-140.

Bakker JP, Dijkstra M and Russchen PT (1985) Dispersal, germination and early establishment of halophytes and glycophytes on a grazed and abandoned salt-marsh gradient. New Phytol. 101, 291-308.

Bakker JP and de Vries Y (1992) Germination and early establishment of lower salt-marsh species in grazed and mown salt marsh. J. Veg. Sci. 3, 247-252.

Balabanova V, Vitkova A and Zheleva-Dimitrova D (2013) Comparative study of germination and seed antioxidant activity of *Arnica montana* L. and *Arnica chamissonis* Less. (Asteraceae) Compt. Rend. Acad. Bulgare Sci. 66, 1261-1268.

Ballard TO, Foley ME, and Bauman TT (1996) Germination, viability, and protein changes during cold stratification of giant ragweed (*Ambrosia trifida* L.). J. Plant Physiol. 149, 229-232.

Banovetz SJ and Scheiner SM (1994) Secondary seed dormancy in *Coreopsis lanceolata*. Amer. Midl. Nat. 131, 75-83.

Barga S, Dilts TE and Leger EA (2017) Climate variability affects the germination

strategies exhibited by arid land plants. Oecologia 185, 437-452.

Barney JN and DiTommaso A (2003) The biology of Canadian weeds. 118. *Artemisia*

*vulgaris* L. Can. J. Plant Sci. 83, 205-215.

Baskin CC and Baskin JM (1988) Germination ecophysiology of herbaceous plant species in a temperate region. Amer. J. Bot. 75, 286-305.

Baskin CC and Baskin JM (1996) Role of temperature and light in the germination

ecology of buried seeds of weedy species of disturbed forests. II. *Erechtites*

*hieracifolia*. Can. J. Bot. 74: 2002-2005.

Baskin CC and Baskin JM (1998) *Seeds: ecology, biogeography and evolution of*

*dormancy and germination*. San Diego, Academic Press.

Baskin CC and Baskin JM (2002) Achene germination ecology of the federally threatened floodplain endemic *Boltonia decurrens* (Asteraceae). Amer. Midl. Nat. 147, 16-24.

Baskin CC, Baskin JM and Chester EW (1991 Temperature response pattern during afterripening of achenes of the winter annual *Krigia oppositifolia* (Asteraceae). Plant Species Biol. 6, 111-115.

Baskin CC, Baskin JM and Chester EW (1995a) Role of temperature in the germination ecology of the summer annual *Bidens polylepis* Blake (Asteraceae). Bull. Torrey Bot. Club 122, 275-281.

Baskin CC, Baskin JM and Hoffman GR (1992a) Seed dormancy in the prairie forb *Echinacea angustifolia* var. *angustifolia* (Asteraceae): afterripening pattern during cold stratification. Int. J. Plant Sci. 153, 239-243.

Baskin CC, Baskin JM. and Leck MA (1993) Afterripening pattern during cold stratification of achenes of ten perennial Asteraceae from eastern North America, and evolutionary implication. Plant Species Biol. 8, 61-65.

Baskin CC, Baskin JM and Van Auken OW (1992b) Germination response patterns to temperature during afterripening of achenes of four Texas winter annual Asteraceae. Can. J. Bot. 70, 2354-2358.

Baskin CC, Baskin JM and Van Auken OW (1994) Germination response patterns during dormancy loss in achenes of six perennial Asteraceae from Texas, USA. Plant Species Biol. 9, 113-117.

Baskin CC, Baskin JM and Van Auken, OW (1995b) Temperature requirements for dormancy break and germination in achenes of the winter annual *Lindheimera texana* (Asteraceae). Southw. Nat. 40, 268-272.

Baskin CC, Baskin JM and Van Auken OW (1998) Role of temperature in dormancy break and/or germination of autumn-maturing achenes of eight perennial Asteraceae from Texas, U.S.A. Plant Species Biol. 13, 13-20.

Baskin CC, Baskin JM and Van Auken OW (1999) Dormancy-breaking and germination

requirements in seeds of the summer annual *Palafoxia callosa* (Asteraceae) from

central Texas*.* Southw. Nat*.* 44, 272-277.

Baskin JM and Baskin CC (1973) Ecological life cycle of *Helenium amarum* in central Tennessee. Bull. Torrey Bot. Club 100, 117-124.

Baskin JM and Baskin CC (1976) Germination dimorphism in *Heterotheca subaxillaris* var. *subaxillaris*. Bull. Torrey Bot. Club 103, 201-206.

Baskin JM and Baskin CC (1979) The germination strategy of oldfield aster (*Aster pilosus*). Amer. J. Bot. 66, 1-5.

Baskin JM and Baskin CC (1980) Ecophysiology of secondary dormancy in seeds of *Ambrosia artemisiifolia*. Ecology 61, 475-480.

Baskin JM and Baskin CC (1981) Temperature relations of seed germination and ecological implications in *Galinsoga parviflora* and *G. quadriradiata*. Bartonia 48, 12-18.

Baskin JM and Baskin CC (1983) Ecophysiology of seed germination and flowering in common broomweed, *Amphiachyris dracunculoides* (DC.) Nutt. J. Range Manage. 36, 619-622.

Bastida F and Menendez J (2004) Germination requirements and dispersal timing in two heterocarpic weedy Asteraceae. Comm. Agric. Appl. Biol. Sci. 69, 67-76.

Bebawi FF, Campbell SD, Mayer RH, Setter MJ and Setter SD (2018) Effects of

temperature and burial on seed germination and persistence of the restricted

invasive *Stevia ovata* in northern Queensland. Aust. J. Bot. 66, 388-397.

Beck E, Schlutter I, Scheibe R and Schulze E-D (1984) Growth rates and population rejunvenation of east African giant groundsels (*Dendrosenecio keniodendron*).

Flora 175, 243-248.

Bekaardt CR, Pieterse PJ, Coetzee J. and Agenbag GA (2004) The breaking of seed

dormancy of guayule (*Parthenium argentatum* Gray.) by treatment with

gibberellic acid and smoke water solution. S. Afr. J. Plant Soil 21, 101-103.

Bell DT, King LA and Plummer JA (1999) Ecophysiological effects of light quality and

nitrate on seed germination in species from Western Australia. Aust. J. Ecol. 24,

2-10.

Bender MH, Baskin JM and Baskin CC (2003) Seed germination ecology of *Polymnia*

*canadensis* (Asteraceae), a monocarpic species of the North American temperate

deciduous forest. Plant Ecol. 168, 221-253

Benedict HM and Robinson J (1946) Studies on germination of guayule seed. U. S. Dept. Agric. Tech. Bull. No. 921.

Beneke K, Van Rooyen MW, Theron GK and Van De Venter HA (1993) Fruit

polymorphism in ephemeral species of Namaqualand: III. Germination

differences between the polymorphic diaspores. J. Arid Environ. 24, 333-344.

Benvenuti S. and Macchia M (1997) Germination ecophysiology of bur beggarticks

(*Bidens tripartita*) as affected by light and oxygen. Weed Sci. 45: 696-700.

Bergstrom DM, Selkirk PM, Keenan HM and Wilson ME (1997) Reproductive behaviour

of ten flowering plant species on subantarctic Macquarie Island. Opera Bot. 132,

109-120.

Bhardwaj M, Kak A, Gupta A, Dashora K and Gupta V (2010) Effect of pre-sowing treatments on germination of greater burdock (*Arctium lappa* L.) - a medicinal plant of Western Himalayas. Seed Sci. & Technol. 38, 783-785.

Bhatt A, Carón MM, Gallacher D and Souza-Filho PRM (2021) Storage duration, light,

temperature, and salinity exposure influence germination of the glycophyte

*Rhanterium epapposum.* Botany 99, 261-267.

Bliss LC (1958) Seed germination in arctic and alpine species. Arctic 11, 180-188.

Bliss SA and Zedler PH (1998) The germination process in vernal pools: sensitivity to environmental conditions and effects on community structure. Oecologia 113, 67-73.

Bochenek A, Golaszewski J, Piotrowicz-Cieslak A and Gorecki RJ (2009) The effects of temperature on the dormancy and germination of *Cirsium arvense* (L.) Scop. seeds. Acta Soc. Bot. Poloniae 78, 105-114.

Bochenek A, and Gielwanowska I (2006) Effect of temperature, desiccation, nitrate and light on the seasonal dormancy pattern expression of *Cirsium arvense* (L.) Scop. achenes. Zeszyty Problemowe Postepow Nark Rolniczych 509, 61-74.

Bochenek A, Golaszewski J and Gielwanowska I (2010) Hydrotime model analysis of

*Matricaria maritima* ssp. *inodora*. Plant Species Biol. 25, 136-148.

Bochenek A, Synowiec A, Kondrat B, Szymezak M, Lahuta LB and Golaszewski J

(2016) Do the seeds of *Solidago gigantea* Aiton have physiological determinants

of invasiveness? Acta Physiol. Plant 38, 159.

Bohórquez-Quintero MA, Araque-Barrera EJ and Pacheco-Maldonado JC (2016)

Propagacion in vitro de *Espeletia paipana* S. Diax y Pedraza, frailejon endemic en

peligro de extinction. Actual Biol. 38, 23-36.

Bonde EK (1965b) Studies on the germination of seeds of Colorado alpine plants. Univ. Colorado Stud. No. 14.

Bonde EK (1965a) Further studies on the germination of seeds of Colorado alpine plants. Univ. Colorado Stud. No. 18.

Borisova IV (1994) Germination capacity and pattern of seed germination in some steppe and meadow plants of Mongolia. Bot. Zhur. 79, 69-75.

Boscagli A, Maccherini S. and Chiarucci A (1996) Germination of nine species of a pioneer plant community of Pliocene clay soils of central western Italy under different photo- and thermo-periods. Acta Soc. Bot. Poloniae 65, 301-306.

Bostock SJ (1978) Seed germination strategies of five perennial weeds. Oecologia 36, 113-126.

Bowers JE (2002) Regeneration of triangle-leaf bursage (*Ambrosia deltoidea*: Asteraceae): germination behavior and persistent seed bank. Southw. Nat. 47, 449-453.

Brändel M (2004a) Dormancy and germination of heteromorphic achenes of *Bidens*  *frondosa*. Flora 199, 228-233.

Brändel M (2004b) The role of temperature in the regulation of dormancy and germination of two related summer-annual mudflat species. Aquat. Bot. 79, 15-32.

Brändel, M.(2007) Ecology of achene dimorphism in *Leontodon saxatilis*. Ann. Bot. 100, 1189-1197.

Brändel M. and Jensen K (2005) Effect of temperature on dormancy and germination of

*Eupatorium cannabinum* L. achenes. Seed Sci. Res. 15, 143-151.

Bratcher C B, Dole JM and Cole JC (1993) Stratification improves seed germination of five native wildflower species. HortScience 28, 899-901.

Bressi D (2016) Comportamiento germinativo de *Trixis praestans* (Asteraceae). XX. Encuentro de Jovenes Investigadores de la Universidad Nacional del Litoral, Santa Fe, Argentina.

Brown NAC and Botha, PA (2004) Smoke seed germination studies and a guide to seed propagation of plants from the major families of the Cape Floristic Region, South Africa. S. Afr. J. Bot. 70, 559-581.

Brown NAC, Prosch D. and Botha PA (1998) Plant derived smoke: an effective pretreatment for seeds of *Syncarpha* and *Rhodocoma* and potentially for many other Fynbos species. S. Afr. J. Bot. 64, 90-92.

Brownsey RN, Kyser GB and DiTomaso JM (2013) Seed and germination biology of *Dittrichia graveolens* (Stinkwort). Inv. Plant Species Manage. 6, 371-380.

Brumback WE (1985) Propagation of wildflowers. Comb. Proc. Int. Plant Prop. Soc. 35, 542-548.

Brusa G, Ceriani R. and Cerabolini B (2007) Seed germination in a narrow endemic species (*Telekia speciosissima*, Asteraceae): implications for *ex situ* conservation. Plant Biosyst. 141, 56-61.

Budisavljevic A, Sandev D, Randić, Stamenković and Kovačić S (2021) Seed dormancy and germination of five selected NATURA-2000 plant species from Croatia showing different germination strategies. Plant Biosyst. 155, 116-127.

Bunker KV (1994a) Overcoming poor germination in Australian daisies. Comb. Proc. Int. Plant Prop. Soc. 44, 81-85.

Bunker KV (1994b) Overcoming poor germination in Australian daisies (Asteraceae) by combinations of gibberellin, scarification, light and dark. Scient. Hort. 59, 243-252.

Burrows GE (1995) Post-fire regeneration and growth of *Senecio garlandii* (Asteraceae)

– a vulnerable plant of the South Western slopes, NSW. Cunninghamia 4, 35-44.

Cabrera PEP, Vargas ELR, Beltrán JAR and Colque MV (2020) Manual de

multiplication de especies nativas con fines forrajeros. Cochabamba, Bolivia.

Ministry of Environment and Water; COTRIFOR Project; Bolivian Catholic

University.

Campbell MH and Nicol HI (1997) Effect of age on the germination of *Cassinia arcuata* seeds in storage and buried in soil. Weed Res. 37, 103-109.

Campbell-Martínez, G, Thetford M, Wilson SB, Steppe C, Pérez HE and Miller, D

(2021) Germination of coastalplain honeycombhead (*Balduina angustifolia*) in

response to photoperiod, temperature and gibberellic acid. Seed Sci. & Technol.

49, 287-303.

Cao S, Liu K, Du G, Baskin JM, Baskin CC, Bu H and Qi W (2018) Seedling emergence

of 144 subalpine meadow plants: effects of phylogeny, life cycle type and seed

mass. Seed Sci. Res. 28, 93-99.

Capon B and Van Asdall W (1967) Heat pre-treatment as a means of increasing germination of desert annual seeds. Ecology 48, 305-306.

Carasso V, Mucciarelli M, Dovana F and Müller JV (2020) Comparative germination ecology of two endemic *Rhaponticum* species (Asteraceae) in different climatic zones of the ligurian and maritime Alps (Piedmont, Italy). Plants 9, 708.

Carpenter WJ, Ostmark ER and Cornell JA (1995) Temperature and seed moisture govern germination and storage of gerbera seed. HortScience 30, 98-101.

Castañeda GSL, Garzón ÁE, Cantillo MÁ, Torres MP and Silva HLJ (2007) Analisis de la respuestra de ocho especies nativas del bosque alto andino ante dos methods de propagacion. Rev. Colombia For. 19, 79-90.

Castro SA, Fuentes ER and Timmermann BN (1995) Germination responses and resin production of *Grindelia glutinosa* and *G. tarapacana* from the Atacama Desert. J. Arid Environ. 29, 25-32.

Catav SS, Küçükakyüz K and Tavşanoğlu C (2018) Effect of fire-derived chemicals on germination and seedling growth in Mediterranean plant species. Basic Appl. Ecol. 30, 65-75.

Cavieres LA and Sierra-Almeida A (2018) Assessing the importance of cold-stratification

for seed germination in alpine plant species of the High-Andes of central Chile.

Perspect. Plant Ecol. Evol. Syst. 30, 125-131.

Chaharsoghi AT and Jacobs B (1998) Manipulating dormancy of capeweed (*Arctotheca calendula* L.). Seed Sci. Res. 8, 139-146.

Chambers JC, MacMahon JA and Brown RW (1987) Germination characteristics of alpine grasses and forbs: a comparison of early and late seral dominants with reclamation potential. Reclam. Reveg. Res. 6, 235-249.

Chandler AF (2000) Glacier Point restoration project. Comb. Proc. Int. Plant Prop. Soc.

50, 585-587.

Chandler JM and Jan CC (1985) Comparison of germination techniques for wild

*Helianthus* seeds. Crop Sci. 25, 356-358.

Chauhan BS, Gill GS and Preston C (2006) Factors affecting seed germination of annual sowthistle (*Sonchus oleraceus*) in southern Australia. Weed Sci. 54, 854-860.

Chauhan BS and Johnson DE (2008a) Germination ecology of two troublesome Asteraceae species of rainfed rice: Siam weed (*Chromolaena odorata*) and coat buttons (*Tridax procumbens*). Weed Sci. 56, 567-573.

Chauhan BS and Johnson DE (2009b) Seed germination and seedling emergence of syndrella (*Synedrella nodiflora*) in a tropical environment. Weed Sci. 57, 36-42.

Chen H and Maun MA (1998) Population ecology of *Cirsium pitcheri* on Lake Huron sand dunes. III. Mechanisms of seed dormancy. Can. J. Bot. 76, 575-586.

Cheng, X-J and Tan D-Y (2009) Bet hedging in heteromorphic achenes of *Heteracia*

*szovitsii* (Asteraceae), a desert ephemeral. Chinese J. Plant Ecol. **33**, 901-910.

Chiang MH and Park KW (1994) Effects of temperature, light and mechanical treatment on the seed germination of *Chrysanthemum coronarium* L. J. Korean Soc. Hort. Sci. 35, 534-539.

Choi GS, Park KW and Kang HM (2003) Effect of temperature, light condition, and priming treatment on the germination of *Aster glehni* FR. seed. J. Bio-Environ. Cont. 12, 132-138.

Chuanren D, Bochu W, Wanqian L, Jing C, Jie L and Huan Z (2004) Effect of chemical and physical factors to improve the germination rate of *Echinacea angustifolia* seeds. Colloids Surf B Biointerfaces 37, 101-105.

Clarke PJ, Davidson EA and Fulloon L (2000) Germination and dormancy of grassy woodland and forest species: effects of smoke, heat, darkness and cold. Aust. J. Bot. 48, 687-700.

Clements CD, Harmon D and Young JA (2010) Diffuse knapweed (*Centaurea diffusa*) seed germination. Weed Sci. 58, 369-373.

Cochrane A and Probert R (2006) Temperature and dormancy-breaking treatments: germination of endemic and geographically restricted herbaceous perennials. Aust. J. Bot. 54, 349-356.

Coffey KL and Kirkman LK (2006) Seed germination strategies of species with restoration potential in a fire-maintained pine savanna. Nat. Areas J. 26, 289-299.

Collins TL (2003) Propagation and cultivation of selected central Australian wildflowers. Int. Plant Prop. Soc. 53, 149-153.

Colosi JC and McCormick JF (1978) Population structure of *Iva imbricata* in five coastal dune habitats. Bull. Torrey Bot. Club 105, 175-186.

Comisión Nacional Forestal (2005) *Manual practico para produccion de planta*. Jalapa, Mexico. Secretaria de Medio Ambiente y Recurosos Naturales.

Commander L., Golos PJ, Miller BP and Merritt DJ (2017) Seed germination traits of desert perennials. Plant Ecol. 218, 1077-1091.

Commander L, Merritt D, Rokich D and Dixon K (2007) Seed germination and dormancy of arid zone species of Australia, p. 15 *in* Turner S, Merritt D, Clarke S, Commander L and Dixon K (Eds.). The 2nd International Society for Seed Science meeting on seeds and the environment. Perth, Western Australia (abstract).

Commander LE, Merritt DJ, Rokich DP and Dixon KW (2009) Seed biology of Australian arid zone species: germination of 18 species used for rehabilitation. J. Arid Environ. 73, 617-625.

Copete MÁ, Herranz R, Ferrandis P and Herranz JM (2018) Induccion de latencia en semillas desecadas de *Scorzonera reverchonii* (Compositae) conservadas a baja temperature. Bosque 39, 137-143.

Cordazzo C. and de Souza HZ (1993) Germinacao de *Senecio crassiflorus* (Compositae). Rev. Brasil. Biol. 53, 81-86.

Cruz-Mazo G, Narbona E and Buide ML (2010) Germination patterns of dimorphic

achenes in three related species of *Scorzoneroides* (Asteraceae, Lactuceae)

growing in different environments. Ann. Bot. Fenn*.* 47, 337-345.

Cuena-Lombraña A, Sanna M, Porceddu M and Bacchetta G (2020) Does storage under gene bank conditions affect seed germination and seedling growth? The case of *Senecio morisii* (Asteraceae), a vascular plant exclusive to Sardinian water meadows. Plants 9, 581.

Cueva JS and Lucero MHP (2018) Evaluacion de las reguladores de crecimiento (kinetina y acido giberetico) para acelerar la germinacion de *Gynoxys verrucosa*. Rev. Bionatura 4, 2018.03.05.8.

Cuevas JG and Figueroa JA (2007) Seed germination of species of the Juan Fernandez Archipelago under laboratory conditions. Gayana Bot. 64, 60-80.

Culliney JL. and Koebele BP (1999) *A native Hawaiian garden. How to grow and care for island plants*. University of Hawaii Press, Honolulu.

Cummins RP and Miller GR (2000) The role of chilling in the germination of some Scottish montane species. Bot. J. Scotl. 52, 171-185.

Cury G, Novembre ADLC and Glória BA (2010) Seed germination of *Chresta sphaerocephala* DC. and *Lessingianthus bardanoides* (Less.) H. Rob. (Asteraceae) from cerrado. Brazil. Arch. Biol. Technol. 53, 1299-1308.

Dağüstü N and Ozer S (2014) Effect of mechanical damage on to emergence rate and

emergence force of some wild sunflower (*Helianthus* L. spp.) seeds. Turk. J.

Agric. Nat. Sci. 1, 2014-2020.

Dakshini KMM and Aggarwal SK (1974) Intracapitular cypsele dimorphism and

dormancy in *Bidens bipinnata.* Biol. Plant*.* 16, 469-471.

Dalmasso AD, Roberto C and Ganci C (2008) *Xerojardineria con especies nativas*. Bol.

Extension Cientifica (Argentina) 6.

Damalas CA (2008) Distribution, biology, and agricultural importance of *Galinsoga parviflora* (Asteraceae). Weed Biol. Manage. 8, 147-153.

Davies P (1999) Experimentation on the cultivation of *Achyrocline flaccida* (Weinm.)

D.C. and *Achyrocline satureoidides* (Lam.) D.C. in Uruguary. Acta Hort.

502, 59-66.

Deitschman GH (1974) *Artemisia* L. Sagebrush, pp. 235-237 *in* C. S. Schopmeyer (Tech. Cord.). *Seeds of woody plants in the United States*. USDA Forest Service Agriculture Handbook No. 450.

Delbón N, Cosa MT and Bernardello G (2017) Reproductive biology, seed germination and regeneration of *Flourensia* DC. species endemic to central Argentina (Asteraceae). Adansonia 39, 71-85.

Dell ND, Albrecht MA and Long QG (2021) Effects of light and temperature on germination of Eggert’s sunflower (*Helianthus eggertii*). Amer. Midl. Nat. 185, 49-56.

Dell ND, Long QG and Albrecht MA(2019) Germination traits in the threatened southeastern grassland endemic, *Marshallia morhii* (Asteraceae). Castanea84, 212-223.

Detka JR and Lambrecht SC (2010) Effects of fire on germination of *Ericameria fasciculata* (Asteraceae), a rare maritime chaparral shrub. Madroño 57, 77-84.

de Villiers MAJ, van Rooyen MW and Theron GK (2002a) Germination strategies of Strandveld Succulent Karooo plant species for revegetation purposes: I. Temperature and light requirements. Seed Sci. & Technol. 30, 17-33.

de Villiers MAJ, van Rooyen MW and Theron GK (2002b) Germination strategies of Strandveld Succulent Karoo plant species for revegetation purposes: II. Dormancy-breaking treatments. Seed Sci. & Technol. 30, 35-49.

de Waal C, Anderson B and Ellis AG (2016) Dispersal, dormancy and life-history

tradeoffs at the individual, population and species levels in southern African

Asteraceae. New Phytol. 210, 356-365.

Dias EF, Moura M, Schaefer H and Silva L (2015) Interactions between temperature,

light and chemical promoters trigger seed germination of the rare Azorean lettuce,

*Lactuca watsoniana* (Asteraceae). Seed Sci. & Technol. 43, 133-144.

Diboll N (2004) Native wildflower and grass propagation information. Comb. Proc. Int. Plant Prop. Soc. 54, 391-401.

Dissanayake P, George DL and Gupta ML (2010) Effect of light, gibberellic acid and

Abscisic acid on germination of guayule (*Pathenium argentatum* Gray) seed.

Indust. Crops Prod. 32, 111-117.

Dodd GL and Donovan LA (1999) Water potential and ionic effects on germination and seedling growth of two cold desert shrubs. Amer. J. Bot. 86, 1146-1153.

Downs MP and Cavers PB (2000) Effects of wetting and drying on seed germination and seedling emergence of bull thistle, *Cirsium vulgare* (Savi) Ten. Can. J. Bot. 78, 1545-1551.

Downs MP and Cavers PB (2002) Physical and chemical factors associated with the reduction or delay of seed germination and seedling emergence of bull thistle, *Cirsium vulgare* (Savi) Ten. under leaf litter. Ecoscience 9, 518-525.

Duarte EF, dos Santos, JA, Peixoto JS and Santos CHB **(**2012) Maturacao e dormencia em diasporos de carrapicho-de-carneiro (*Acanthospermum hispidum* DC. – Asteraceae). Rev. Brasil. Sementes34, 441-449.

Dwyer JM and Erickson TE (2016) Warmer seed environments increase germination fractions in Australian winter annual plant species. Ecosphere 7, e01497.

Eddleman LE and Romo JT (1988) Spotted knapweed germination response to stratification, temperature, and water stress. Can. J. Bot. 66, 653-657.

El-Keblawy A (2003) Effects of achene dimorphism on dormancy and progeny traits in

the two ephemerals *Hedypnois cretica* and *Crepis aspera* (Asteraceae). Can. J.

Bot*.* 81, 550-559.

Ellery AJ (2002) Embryo dormancy responses to temperature in capeweed (*Arctotheca calendula*) seeds. Seed Sci. Res. 12, 181-191.

Ellery AJ and Chapman R (2000) Embryo and seed coat factors produce seed dormancy in capeweed (*Arctotheca calendula*). Aust. J. Agric. Res. 51, 849-854.

Elliott S, Anbusarnsunthorn V, Kopachon S, Maxwell JF, Blakesley D and Garwood NC (1996) Research toward the restoration of northern Thailand’s degraded forests, pp. 1-16 *in* Symposium on Accelerating Native Forest Regeneration on Degraded Tropical Lands, Washington, DC, 11-14 June 1996.

Ellis JF and Ilnicki RD (1968) Seed dormancy in corn chamomile. Weed Sci. 16, 111-113.

Elsey-Quirk T, Middleton BA and Proffitt CE (2009) Seed flotation and germination of salt marsh plants: the effects of stratification, salinity, and/or inundation regime. Aquat. Bot. 91, 40-46.

Emery DE (1988) Seed propagation of native California plants. Santa Barbara Botanic Garden, Santa Barbara, CA.

Enright NJ and Kintrup A (2001) Effects of smoke, heat and charred wood on the germination of dormant soil-stored seeds from a *Eucalyptus baxteri* heathy-woodland in Victoria, SE Australia. Aust. Ecol. 26, 132-141.

Erickson TE, Ainsley PJ and Gibbs J (2007) Effect of in-situ seed burial on germination rates of two South Australian threatened Compositae species: *Brachyscome muelleri* Sond. and *Senecio megaglossus* F. Muell, p. 20 *in* Turner S, Merritt D, Clarke S, Commander L and Dixon K (Eds.). The 2nd International Society for Seed Science Meeting on Seeds and the Environment, Perth, Western Australia (abstract).

Erickson TE, Muñoz-Rojas M, Kildisheva OA, Stokes BA, White SA, Heyes JL, Dalziell EL, Lewandrowski W, James JJ, Madsen MD, Turner SR and Merritt DJ (2017) Benefits of adopting seed-based technologies for rehabilitation in the mining sector: a Pilbara perspective. Aust. J. Bot. 65, 646-660.

Esashi Y, Fuwa N, Kojima K and Hase S (1986) Light actions in the germination of cocklebur seeds. IV. Disappearance of red light-requirement for the germination of upper seeds subject to anoxia, chilling, cyanide or azide pretreatment. J. Exp. Bot. 37, 1652-1662.

Esashi Y and Leopold AC (1968) Physical forces in dormancy and germination of

*Xanthium* seeds. Plant Physiol. 43, 871-876.

Eurola S (1972) Germination of seeds collected in Spitsbergen. Ann. Bot. Fennici 9, 149-

159.

Evans RA, Young JA and Hawkes R (1979) Germination characteristics of Italian thistle (*Carduus pycnocephalus*) and slenderflower thistle (*Carduus tenuiflorus*). Weed

Sci. 27, 327-332.

Everett PC (2012) A second summary of the horticulture and propagation of California

native plants at the Rancho Santa Ana Botanic Garden, 1950-1970. Claremont,

CA.

Falkner MB, Laven RD and Aplet GH (1997) Experiments on germination and early

growth of three rare and endemic species of Hawaiian *Tetramolopium*

(Asteraceae). Biol. Conserv. 80, 39-47.

Feitosa SS, Davide AC, Tonetti OAO, Fabricante JR and Lui JJ (2009) Estudos de

viabilidade de sementes de candeia *Eremanthus erythropappus* (DC.) MacLeish

por meio de teestes de germinacao e raios X. Florestia 39, 393-399.

Felippe GM and Polo M (1983) Germinacao de ervas invasoras: efeito de luz e

escarificacao. Rev. Brasil. Bot. 6, 55-60.

Fernandez H, Perez C, Revilla MA and Perez-Garcia F (2002) The levels of GA3 and GA20 may be associated with dormancy release in *Onopordum nervosum* seeds. Plant Growth Reg. 38, 141-143.

Fernandez-Pascual E,  [Jiménez-Alfaro](https://onlinelibrary-wiley-com.ezproxy.uky.edu/action/doSearch?ContribAuthorRaw=Jim%C3%A9nez-Alfaro%2C+B) B and [Bueno](https://onlinelibrary-wiley-com.ezproxy.uky.edu/action/doSearch?ContribAuthorRaw=Bueno%2C+%C3%81) Á (2017) Comparative seed germination traits in alpine and subalpine grasslands: higher elevations are associated with warmer germination temperatures. Plant Biol. 19, 32-40.

Ferreira AG, Cassol B, da Rosa S. T, Stival AL and Silva AA (2001) Germinacao de sementes de Asteraceae nativas no Rio Grande do Sul, Brasil. Acta Bot. Brasil. 15, 231-242.

Figueroa JA and Armesto J. (2001) Community-wide germination strategies in a temperate rainforest of southern Chile: ecological and evolutionary correlates. Aust. J. Bot. 49, 411-425.

Figueroa R, Doohan D, Cardina J and Harrison K. (2007) Common groundsel (*Senecio vulgaris*) seed longevity and seedling emergence. Weed Sci. 55, 187-192.

Flint SD and Palmblad IG(1978) Germination dimorphism and developmental flexibility

in the ruderal weed *Heterotheca grandiflora*. Oecologia36, 33-43.

Fonseca PG, Nunes UR and Nunes SCP (2012) Aspectos da germinacao de sementes de

assa-peixe (*Vernonia polyanthes* Less.). Cienc. Rural 42, 633-637.

Forbis TA (2010) Gemination phenology of some Great Basin native annual forb species. Plant Species Biol. 25, 221-230.

Fossati A (1980) Keimverhalten und fruhe entwicklungsphasen einiger alpenflanzen. Veroffentlich. Geobot. Inst. ETH, Stiftung Rubel, Zurich 73, 1-193.

Fournaraki C, Remoundou I and Thanos CA (2007) Ex situ conservation of European

threatened plants in western Crete, Greece (CRETAPLANT project, EU-LIFE).

Poster. <https://citeseerx.ist.psu.edu/viewdoc/citations?doi=10.1.1.520.4609>

http://cretaplant.biol.uoa.gr/posters/FournarakiPerthPoster.pdf

Francisco-Ortega J, Ellis RH, Gonzalez-Feria E and Santos-Guerra A (1994) Overcoming seed dormancy in *ex situ* plant germplasm conservation programmes; an example in the endemic *Argyranthemum* (Asteraceae: Anthemideae) species from the Canary Islands. Biodiv. Conserv. 3, 341-353.

Frischie S, Fernández-Oascyal E, Ramirez CG, Toorop P, González and Jiménez-Algaro B (2019) Hydrothermal thresholds for seed germination in winter annual forbs from old-field Mediterranean landscapes. Plant Biol. 21, 449-457.

Galinato MI and van der Valk AG (1986) Seed germination traits of annuals and emergents recruited during drawdowns in the Delta Marsh, Manitoba, Canada. Aquat. Bot. 26, 89-102.

Galíndez G, Biganzoli F, Ortega-Baes P and Scopel AL (2009a) Fire responses of three co-occurring Asteraceae shrubs in a temperate savanna in South America. Plant Ecol. 202, 149-158.

Galíndez G, Ortega-Baes P, Daws MI, Suhring S, Scopel AL and Pritchard HW (2009b) Seed mass and germination in Asteraceae species of Argentina. Seed Sci. & Technol. 37, 786-790.

Garcia LC, Barros FV and Filho JPL (2006) Comportamento germinativo de duas especies de canga ferrifera: *Baccharis retusa* DC. (Asteraceae) e *Tibouchina multiflora* Cogn. (Melastomataceae). Acta Bot. Brasil. 20, 443-448.

Garcia Q. and Sharif RR (1995b) Aspectos ecofisiologicos da quebra de dormencia em *Acanthospermum hispidum* DC. Rev. Brasil. Bot.18, 113-117.

Garcia QS and Sharif RR (1995a) Germinacao e dormencia em aquenios de *Acanthospermum hispidum*, DC., uma especia invasora. Rev. Brasil. Bot.18, 17-25.

Garwood NC (1979) Seed germination in a seasonal tropical forest in Panama. Ph.D. thesis. University of Chicago. Chicago, Illinois.

Gazanchian A and Zarif Ketabi H (2012) Effects of seed collecting date and storage

duration on seed germination in *Artemisia* spp. Afr. J. Biotechnol*.* 11, 9782-9787.

Gealy DR, Squier SA. and Ogg AG, Jr. (1994) Soil environment and temperature affect germination and seedling growth of mayweed chamomile (*Anthemis cotula*). Weed Technol. 8, 668-672.

Gealy DR, Young FL and Morrow LA (1985). Germination of mayweed (*Anthemis*

*cotula*) achenes and seed. Weed Sci. 33, 69-73.

Gelviz-Gelvez SM, Pavón NP, Flores J, Barragán F and Paz H (2020) Germination of

seven species of shrubs in semiarid central Mexico: effect of drought and seed

size. Bot. Sci. 98, 464-472.

Gibson-Roy P, Delpratt J and Moore G (2007) Restoring the Victorian western (basalt) plains grassland. 1. Laboratory trials of viability and germination, and the implications for direct seeding. Ecol. Manage. Restor. 9, 114-122.

Gilmer K and Kadereit JW (1989) The biology and affinities of *Senecio teneriffae* Schultz Bip., an annual endemic from the Canary Islands. Bot. Jahrb. Syst. 111, 263-273.

Gimenez-Benavides L, Escudero A and Perez-Garcia F (2005) Seed germination of high mountain Mediterranean species: Altitudinal, interpopulation and interannual variability. Ecol. Res. 20, 433-444.

Godínez-Álavrez H and Flores-Martínez (1999) Germinacion de semillas de 32 especies de plantas de la coata de Guerrero: su utilidad para la restauracion ecologica. Polibotanica 11, 1-19.

Godinho MAS, Mantovani-Alvarenga E and Vieira MF (2011) Germinacao e qualidade de sementes de Adenostemma brailianum (Pers.) Cass., Asteraceae nativa de sub-bosque de Floresta Atlantica. Rev. Arvore 35, 1197-1205.

Goettemoeller J and Ching A (1999) Seed germination in *Stevia rebaudiana,* pp. 510-511 *in* Janick (Ed.), *Perspectives on new crops and new uses*. Alexandria, VA ASHS Press.

Gomes V and Fernandes GW (2002) Germinacao de aquenios de *Baccharis dracunculifolia* D.C. (Asteraceae). Acta Bot. Brasil. 16, 421-427.

Gomez-González S, Torres-Díaz C and Gianoli E (2011) The effects of fire-related cues on seed germination and viability of *Helenium aromaticum* (Hook.) H.L. Bailey (Asteraceae). Gayana Bot. 68, 86-88.

Gonzalez SL and Ghermandi L (2012) Fire cue effects on seed germination of six species of northwestern Patagonian grasslands. Nat. Hazards Earth Syst. Sci. 12, 2753-2758.

Graves WL, Kay BL and Williams WA (1975) Seed treatment of Mojave desert shrubs. Agron. J. 67, 773-777.

Greene HC and Curtis JT (1950) Germination studies of Wisconsin prairie plants. Amer. Midl. Nat. 43, 186-194.

Gregory SD, Espeland EK and Carlsen TM (2001) Demography and population biology

of a rare tarplant, *Blepharizonia plumosa*, (Asteraceae) a California summer annual forb. Madroño 48, 272-285.

Gresta F, Cristaudo A, Onofri A, Restuccia A and Avola G (2010) Germination response of four pasture species to temperature, light, and post-harvest period. Plant Biosyst*.* 144, 849-856.

Grime JP, Mason G, Curtis AV, Rodman J, Band SR, Mowforth MG, Neal AM and Shaw S (1981) A comparative study of germination characteristics in a local flora. J. Ecol. 69, 1017-1059.

Grzybowski CRS, Silva RC, Vieira ESN and Panobianco M (2016) Maturation and germination of *Vernonanthura discolor* seeds. Cienc. Agrotecnol. 40, 164-172.

Guariguata MR and Azocar A (1988) Seed bank dynamics and germination ecology in *Espeletia timotensis* (Compositae), an Andean giant rosette. Biotropica 20, 54-59.

Gucker, CL and Shaw NL (2018) Douglas’ dustymaiden (*Chaenactis douglasii*), pp. 1-14

*in* Gucker CL and Shaw NL (Eds*.), Western forbs: biology, ecology, and use in*

*restoration*. Reno, NV: Great Basin Fire Science Exchange. 14 p. Online: http:// greatbasinfirescience.org/western-forbs-restoration

Guerrant EO and Raven A (1999) Seed germination and storability studies of 69 plant

taxa native to the Willamette Valley wet prairie, pp. 25-31 *in* Rose R and Haase

DL (Eds.), *Native plants: propagating and planting*. Restoration, Nurseries and

Genetic Resources. USDA Forest Service.

Guillemin J-P and Chauvel B (2011) Effects of the seed weight and burial depth on the seed behavior of common ragweed (*Ambrosia artemisiifolia*). Weed Biol. Manage. 11, 217-223.

Guo F, Noh K, Li Y, Xiao J and Jeong BR(2021) Seed germination of potential wild ornamental plants native to Korea in response to chilled-water stratification, GA3, and germination temperature. Prop. Ornament. Plants21, 11-18.

Hammouda MA and Bakr ZY (1969) Some aspects of germination of desert seeds.

Phyton (Austria) 13, 183-201.

Harras N and Lamarti A (2014), In vitro germination and plantlet establishment of wild chamomile of Morocco *Cladanthus mixtus* (L.) Oberpr. and Vogt. Amer. J. Plant

Sci. 5, 2623-2632.

Hassell RL, Dufault RJ, Phillips T and Hale TA (2004) Influence of temperature gradients on pale and purple coneflower, feverfew, and valerian germination. HortTechnology 14, 368-371.

Hayashi I and Numata M (1967) Ecology of pioneer species of early stages in secondary succession L. Bot. Mag. Tokyo 80, 11-22.

Henrici M (1935) Germination of Karroo bush seeds. S. Afr. J. Sci. 32, 223-234.

Herranz JM, Ferrandis P, Copete MA and Martinez-Sanchez JJ (2002) Influencia de la temperatura de incubacion sobre la germinacion de 23 endemismos vegetales Ibericos o Iberoafricanos. Invest. Agric. Prod. Prot. Veg. 17, 230-245.

Hilton JR (1983) The influence of light on the germination of *Senecio vulgaris* L. New

Phytol. 94, 29-37.

Hiramatsu N (1973) Transition of germination capacity of the seeds from wild grasses while stored in natural dry atmosphere. Jap. J. Ecol. 23, 266-273.

Hitchmough J, de la Fleur M and Findlay C (2004) Establishing North American prairie vegetation in urban parks in northern England. Part 1. Effect of sowing season, sowing rate and soil type. Landsc. Urban Plan. 66, 75-90.

Hodges JA, Price JN, Nicotra AB and Gupta LK (2022) Smoke and heat can increase germination of common wildflowers and grasses – implications for conservation and restoration of critically endangered grassy ecosystems. Ecol. Manage. Restor. 23, 94-999.

Hodi L and Torma M (2002) Germination biology of *Iva xanthiifolia* Nutt. J. Plant Dis. Prot. 18, 219-224.

Hogue EJ (1976) Seed dormancy of nodding beggarticks (*Bidens cernua* L.). Weed Sci. 24, 375-378.

Holmes PM and Newton RJ (2004) Patterns of seed persistence in South African fynbos. Plant Ecol. 172, 143-158.

Homrani-Bakali A (2015) Effect of various pre-treatments and alternating temperature on seed germination of *Artemisia herba-alba* Asso. J. Plant Stud. 4, 12-20.

Honda Y and Katoh K (2007) Strict requirement of fluctuating temperatures as a reliable gap signal in *Picris hieracioides* var. *japonica* seed germination. Plant Ecol. 193, 147-156.

Hoyle GL, Daws MI, Steadman KJ and Adkins SW (2008a) Pre- and post-harvest influences on physiological dormancy alleviation of an Australian Asteraceae species: *Actinobole uliginosum* (A. Gray) H. Eichler. Seed Sci. Res. 18, 191-199.

Hoyle GL, Daws MI, Steadman KJ and Adkins SW (2008b) Mimicking a semi-arid tropical environment achieves dormancy alleviation for seeds of Australian native Goodeniaceae and Asteraceae. Ann. Bot. 101, 701-708.

Hoyle GL, Daws MI, Steadman KJ and Adkins SW (2008c) Physiological dormancy in forbs native to south-west Queensland: diagnosis and classification. S. Afr. J. Bot. 74, 208-213.

Hoyle GL, Steadman KJ, Good RB, McIntosh EJ, Galea LME and Nicotra AB (2015) Seed germination strategies: an evolutionary trajectory independent of vegetative functional traits. Front. Plant Sci. 6, 731

Hsu LM (2005) Seed germination and chemical control of common ragweed (*Ambrosia artemisiifolia*. Plant Prot. Bull. 47, 361-370.

Huang H-L, Huang Y-L, Wu T-C and Kao W-Y (2015) Phenotypic variation and germination behavior between two altitudinal populations of two varieties of *Bidens pilosa* in Taiwan. Taiwania 60, 194-202.

Huang J-Z, Qiu M-Z, Fu J-R and Okada Y (2000) Effects of storage conditions on germination rate of *Leonurus artemisia, Platycodon grandiflorus* and *Atractylodes macrocephala* seeds. J. Trop. Subtrop. Bot. 8, 365-368.

Huang Z and Gutterman Y (1998) *Artemisia monosperma* achene germination in sand: effects of sand depth, sand/water content, cyanobacterial sand crust and temperature. J. Arid Environ. 38, 27-43.

Huang Z and Gutterman Y (1999a) Water absorption by mucilaginous achenes of *Artemisia monosperma*: Floating and germination as affected by salt

concentrations. Israel J. Plant Sci. 47, 27-34.

Huang Z and Gutterman Y (1999b) Germination of *Artemisia sphaerocephala* (Asteraceae), occurring in the sandy desert areas of northwest China. S. Afr. J. Bot. 65, 187-196.

Huang Z and Gutterman Y (2000) Comparison of germination strategies of *Artemisia ordosica* with its two congeners from deserts of China and Israel. Acta Bot. Sin*.* 42, 71-80.

Huang Z, Liu S, Bradford KJ, Huxman TE and Venable DL (2016) The contribution of germination functional traits to population dynamics of a desert plant community. Ecology 97, 250-261.

Huarte HR, Borlandelli F, Varisco D and Batlla D (2018) Understanding dormancy breaking and germination ecology of *Cynara cardunculus* (Asteraceae). Weed Res. 58, 450-462.

Hunyadi K, Kazinczi G and Lukacs D (1998) Germination biology and allelopathy of *Iva xanthiifolia* Nutt. Z. Pflkarankh. Pflschutz, Sonderh. 16, 209-215.

Ikuta ARY and Barros II (1996) Influencia da temperatura e da luz sobre a germinacao de marcela (*Achrocline satureioides*). Pesq. Agropec. Brasil., Brasilia 31, 859-862.

Ilinkin V, Yankova-Tsvetkova E and Stanilova M (2020) Germination and viability of

seeds of *Tanacetum cinerariifolium* (Asteraceae). Comp. Rend. Acad. Bulgare

Sci. 73, 965-970.

Imbert E, Escarré J and Lepart J(1996) Achene dimorphism and among-population variation in *Crepis sancta* (Asteraceae). Int. J. Plant Sci. 157, 309-315.

Ishikawa S-I and Kachi N (2000) Differential salt tolerance of two *Artemisia* species

growing in contrasting coastal habitats. Ecol. Res. 15, 241-247.

Jeon KS, Song KS, Yoon JH, Kim CH and Kim JJ (2013a). Effects of seed pretreatment

and environment controls on germination of *Atractylodes japonica* seeds. Korean

J. Med. Crop Sci. 21, 394-400.

Jeon KS, Song KS, Kim CH, Yoon JH and Kim JJ (2013b) Effects of seed pre-treatment

and germination environments on germination characteristics of *Ligularia fischeri*

seeds. J. Bio-Environ. Cont. 22, 262-269.

Jeon SH, Son D, Ryu YS, Kim SH, Chung JI, Kim MC and Shim SI (2010) Effect of

Presowing seed treatments on germination and seedling emergence in *Taraxacum*

*platycarpum*. Korean J. Med. Crop Sci. 18, 9-14.

Jiménez-Vázquez AM, Flores-Palacios A, Flores-Morales A, Perea-Arango I, Gutiérrez

MC, Arellano-Garcia JJ and Valencia Díaz S (2021) Seed longevity, viability and

germination of four weed-ruderal Asteraceae species of ethnobotanic value. Bot.

Sci. 99, 279-290.

Jones AG (1978) Observations on reproduction and phenology in some perennial asters.

Amer. Midl. Nat. 99, 184-197.

Jorritsma-Wienk LD, Ameloot E, Lenssen JPM and de Kroon H (2007) Differential

responses of germination and seedling establishment in populations of

*Tragopogon pratensis* (Asteraceae). Plant Biol. 9, 109-115.

Jurado E, Aguirre O, Flores J, Navar J, Villalon H.and Wester, D (2000) Germination in Tamaulipan thornscrub of north-eastern Mexico. J. Arid Environ. 46, 413-424.

Jurado E and Westoby M (1992) Germination biology of selected central Australian plants. Aust. J. Ecol. 17, 341-348.

Jusaitis M, Polomka L and Sorensen B (2004) Habitat specificity, seed germination and experimental translocation of the endangered herb *Brachycome muelleri* (Asteraceae). Biol. Conserv. 116, 251-266.

Jusaitis M, Sorensen B and Polomka L (2003) Reproductive biology of the endangered *Brachycome muelleri* (Asteraceae), an endemic herb of Eyre Peninsula, South

Australia. Aust. J. Bot. 51, 179-188.

Jursik M, Soukup J, Holec J and Kohout V (2002) Germination, emergence and dormancy in *Galinsoga ciliata* Blake. Z. PflKrankh. PflSchutz., Sonderh. 18, 205-211.

Jursik M, Soukup J, Venclova V and Holec J (2003) Seed dormancy and germination of shaggy soldier (*Galinsoga ciliata* Blake.) and common lambsquarter (*Chenopodium album* L.). Plant Soil Environ. 49, 511-518.

Kabat, S. M., Norcini, J. G. and Dehgan, B. (2007) Temperature and light affects

germination ecology of commercially produced seeds of Leavenworth’s

coreopsis. Native Plants J. 8, 236-247.

Karlsson LM, Tamado T and Milberg P (2008) Inter-species comparison of seed dormancy and germination of six annual Asteraceae weeds in an ecological context. Seed Sci. Res. 18, 35-45.

Kay BL, Pergler CC and Graves WL (1984) Storage of seed of Mojave Desert shrubs. J.

Seed Technol. 9, 20-28.

Kay QON (1971) Biological flora of the British Isles. No. 122. *Anthemis cotula* L. J. Ecol. 59, 623-636.

Kaye TN (1997) Seed dormancy in high elevation plants: implications for ecology and restoration, pp. 115-120 *in* Kaye TN, Liston A, Love RM, Luoma DL, Meinke RJ and Wilson MV (Eds.), *Conservation and management of native plants and fungi*. Native Plant Society of Oregon, Corvallis.

Kayne TN and Kuykendall K (2001) Germination and propagation techniques for restoring rare Pacific Northwest prairie plants, pp. 213-224 *in* Reichard SH, Dunwiddie PW, Gamon JG, Kruckeberg AR and Salstrom DL (Eds.), *Conservation of Washington’s native plants and ecosystems*. Washington Native Plant Society, Seattle.

Kazanci DD and Tavşanoğlu C (2019) Heat shock-stimulated germination in Mediterranean Basin plants in relation to growth form, dormancy type and distributional range. Folia Geobot. 54, 85-98.

Kazinczi G and Hunyadi K (1995) Laboratory germination of *Matricaria inodora* L. and

*Papaver rhoeas* L., pp. 219-223 *in* 9th. European Weed Res. Soc. Symposium,

Budapest 1995: Challenges for weed science in a changing Europe.

Keeley JE (1987) Role of fire in seed germination of woody taxa in California chaparral. Ecology 68, 434-443.

Keeley JE and Keeley SC (1987) Role of fire in the germination of chaparral herbs and suffrutescents. Madroño34, 240-249.

Kegode GO, Nazre G and Christoffers MJ (2010) Germination ecology of biennial wormwood (*Artemisia biennis*) and lanceleaf sage (*Salvia reflexa*) seeds. Weed Sci. 58, 61-66.

Kelly SS and McKinney CE (2020) Drought effects on germination rate of two sagebrush species, *Artemisia cana* and *Artemisia arbusula*, and comparison of seed counts using a photography App and weighing. Environmental Science & Management Senior Capstones. 11. Humboldt State University, CA.

Khan MA, Sankhla N, Weber DJ and McArthur ED (1987) Seed germination characteristics of *Chrysothamnus nauseosus* ssp. *viridulus* (Astereae, Asteraceae). Great Basin Nat. 47, 220-226.

Kigel J (1992) Diaspore heteromorphism and germination in populations of the ephemeral *Hedypnois rhagadioloides* (L.) F.W. Schmidt (Asteraceae) inhabiting a geographic range of increasing aridity. Acta Oecol. 13, 45-53.

Kigomo BN, Woodell SR and Savill PS (1994) Phenological patterns and some aspects of reproductive biology of *Brachylaena huillensis* O. Hoffm. Afr. J. Ecol. 32, 296-307.

Kildisheva OA, Erickson TE, Kramer AT and Zeldin J (2019a) Optimizing physiological dormancy break of understudied cold desert perennials to improve seed-based restoration. J. Arid Environ. 170, 104001.

Kildisheva OA, Erickson TE, Madsen MD, Dixon KW and Merritt DJ (2019b) Seed germination and dormancy traits of forbs and shrubs important for restoration of North American dryland ecosystems. Plant Biol. 21, 458-469.

Kirmizi S, Gülervüz G and Arslan H (2011) Germination responses to GA3 and short-time chilling of three endemic species: *Tripleurospermum pichleri, Cirsium leucopsis* and *Senecio olympicus* (Asteraceae). Plant Species Biol. 26, 51-57.

Kissock DC and Haferkamp MR (1983) Presowing seed treatment and temperature effects on germination of *Engelmannia pinnatifida* and *Indigofera miniata* var. *leptosepala*. J. Range Manage. 36, 94-97.

Knevel IC, Venema HG and Lubke RA (2002) The search for indigenous dune stabilizers: germination requirements of selected South African species. J. Coast. Conserv. 8, 169-178.

Koller D and Roth N (1964) Studies on the ecological and physiological significance of amphicarpy in *Gymnarrhena micrantha* (Compositae). Amer. J. Bot. 511, 26-35.

Koller D, Sachs M and Negbi M (1964a) Spectral sensitivity of seed germination in *Artemisia monosperma*. Plant Cell Physiol. 5, 79-84.

Koller D, Sachs M and Negbi M (1964b) Germination-regulating mechanisms in some desert seeds. VIII. *Artemisia monosperma*. Plant Cell Physiol. 5, 85-100.

Kondo T (1995) Germination characteristics and population management of *Aster ageratoides* subsp. *ovatus* for landscaping with wildflowers. Asian-Pacific Weed Sci. Soc. Conf. 15, 413-418.

Kondo T, Ishigaki H and Tei A (2014) Seed germination characteristics and seed bank formation in *Rudbeckia laciniata* L. J. Jap. Soc. Reveget. Technol. 40, 315-323.

Kondo T, Maenaka H, Noda T and Takahashi R (1992) Experimental study on establishment of *Hypochoeris radicata* L. swards by sowing and their vegetational management by mowing. J. Jap. Inst. Landsc. Arch. 56, 15-27.

Kootenay (Kootenay Local Agricultural Society) (2008) Perennial seed germination information.

[https://docplayer.net/46736765-Perennial-seed-germination-information- kootenay-local-](https://docplayer.net/46736765-Perennial-seed-germination-information-%20kootenay-local-)agricultural-society-2008.html

Kos M, Baskin CC and Baskin JM (2012) Relationship of kinds of seed dormancy with habitat and life history in the southern Kalahari flora. J. Veg. Sci. 23, 869-879.

Kos M and Poschlod P (2007) Seeds use temperature cues to ensure germination under nurse-plant shade in xeric Kalahari savannah. Ann. Bot. 99, 667-675.

Kreiberg P (2000) Can seed treatments improve germination of rare salt marsh species? Comb. Proc. Int. Plant Prop. Soc. 50, 583-584.

Kruse WH (1970) Temperature and moisture stress affect germination of *Gutierrezia sarothrae*. J. Range Manage. 23, 143-145.

Kullmann WH (1982) Seed germination records of Western Australian plants. Kings Park Research Notes No. 7, Perth.

Lai L, Zheng Y, Bai H, Yu Y, An P, Li X, Rimmington GM and Shimizu H (2010) Strong light inhibits germination of *Artemisia sphaerocephala* and *A. ordosica* at low temperature and its relevance to revegetation in sandy lands of Inner Mongolia, China. Ecol. Res. 25, 771-780.

Lambert BB and Menges ES (1996) The effects of light, soil disturbance and presence of organic litter on the field germination and survival of the Florida goldenaster, *Chrysopsis floridana* Small. Florida Scient. 59, 121-137.

Lamp WO and McCarty MK (1981) Biology and ecology of the Platte thistle (*Cirsium canescens*). Weed Sci. 29, 686-692.

Lamsal A, Devkota MP, Shrestha DS, Joshi S and Shrestha A (2019) Seed germination

ecology of *Ageratum houstonianum*: a major invasive weed in Nepal. PLoS ONE

14, e0225430.

Larson L and Kiemnec G (1997) Differential germination by dimorphic achenes of yellow starthistle (*Centaurea solstitialis* L.) under water stress. J. Arid. Environ. 37, 107-114.

Lattuada DS, Pezzi A, Calil AC, Leonhardt C and For CS (2012) Conservacao de diasporos de *Schlechtendalia luzulifolia* Less. (Asteraceae). Pesq. Agrop. Gaúcha 18, 94-101.

Leck MA, Baskin CC and Baskin JM (1994) Germination ecology of *Bidens laevis* (Asteraceae) from a tidal freshwater wetland. Bull. Torrey Bot. Club 121, 230-239.

Lee KC, Lee SG, Lee U-K, Noh HS and Lee JH (2018) Several factors affecting seed emergence, seedling quality and survival of potted seedling on *Ligularia fischeri*. J. Korean For. Soc. 105, 63-72.

Leger E and Barga S (2015) Species and population-level variation in germination strategies of cold desert forbs, pp. 37-41 *in* Kilkenny F, Halford A and Malcomb A (Eds.), *Great Basin Native Plant Project: 2014 Progress Report*. Boise, ID: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

Le Stradic S, Silveira FAO, Buisson E, Cazelles K, Carvalho V and Fernandes GW (2015) Diversity of germination strategies and seed dormancy in herbaceous species of *campo rupestre* grasslands. Aust. Ecol. 40, 537-546.

Letchamo W and Gosselin A (1996) Light, temperature and duration of storage govern the germination and emergence of *Taraxacum officinale* seed. J. Hort. Sci. 71, 373-377.

Leverett LD and Jolls CL (2014) Cryptic seed heteromorphism in *Packera tomentosa* (Asteraceae): differences in mass and germination. Plant Species Biol. 29, 169-180.

Levyns MR (1935) Germination in some South African seeds. S. Afr. J. Bot. 1, 161-170.

Li M, Wang C, and Wan J (2004) Study on germination and emergence characteristics of *Xanthium sibiricum*. Seed (China) 23, 35-38.

Li X, Li X, Jiang D and Liu Z (2006) Germination strategies and patterns of annual species in the temperate semiarid region of China. Arid Land Res. Manage. 20, 195-207.

Lilleeng-Rosenberger KE (2005) *Growing Hawai`i’s native plants. A simple step-by-step approach for every species*. Mutual Publishing, Honolulu.

Lima YBC, Durigan G and Souza FM (2014) Germinacao de 15 especies vegetais do cerrado sob diferentes condicoes de luz. Biosci. J., Uberlandia 30, 1864-1872.

Liu H-L, Zhang L-W, Yin L-K and Zhang D-Y (2013) Effects of temperature, dry storage, and burial on dormancy and germination of seeds of 13 desert plant species from sand dunes in the Gurbantunggut Desert, northwest China. Arid Land Res. Manage. 27, 65-78.

Liu K, Baskin JM, Baskin CC, Bu H, Liu M, Liu W and Du G (2011) Effect of storage conditions on germination of seeds of 489 species from high elevation grasslands of the eastern Tibet Plateau and some implications for climate change. Amer. J. Bot. 98, 12-19.

Liu Z-M, Li X-H, Li R-P, Jiang D-M, Cao C-Y and Chang X-L (2004) A comparative study of seed germination for 31 annual species of the Horqin steppe. Acta Ecol. Sin. 24, 648-653.

Löbler L, Rocha BN, Bertê R, Lucho SR, Fernandes TS, Soriani HH and Paranhos JT (2016) Comportamento germinativo das sementes de *Solidago chilensis* Meyen (Asteraceae). Iheringia 71, 43-48.

Lombardi T, Bedini S and Bertacchi A (2019) Germination ecology of the aromatic halophytic *Artemisia caerulescens* L.: influence of abiotic factors and seed after-ripening time. Folia Geobot.54, 115-124.

Lonchamp J-P. and Gora M (1980) Evolution de la faculte germinative de semences de mauvaises herbes au cours de leur conservation au sec. Inst. Nat. Recherche Agron., Dijon, France. 60 pages.

Lorenzi H (1998a) *Arvores brasileiras: manual de identificacao e cultivo de plantas arboreas nativas do Brasil*. Volume 1. Instituto Plantarum de Estudos da Flora, Nova Odessa, Sao Paulo.

Lorenzi H (1998b) *Arvores brasileiras: manual de identificacao e cultivo de plantas arboreas nativas do Brasil*. Volume 2. Instituto Plantarum de Estudos da Flora, Nova Odessa, Sao Paulo.

Love D and Dansereau P (1959) Biosystematic studies on *Xanthium*: Taxonomic appraisal and ecological status. Can. J. Bot. 37, 173-208.

Lu J, Dong W, Tan D, Baskin CC and Baskin JM **(**2020) Dormancy and germination of the trimorphic achenes of a cold desert annual: spreading the risk over time. AoB Plants12, plaa056.

Ludi W (1932) Keimungsversche mit samen von alpenpflanzen. Mitteil. Natf. Gesell. Bern 1933, 46-50.

Luna T, Corey S, Evans J, Wick D and Hosokawa J (2008a). Propagation protocol for production of Container (plug) *Arnica cordifolia* Hook. plants in 160 ml containers; USDI NPS - Glacier National Park West Glacier, Montana. *in* Native Plant Network. URL: https://NativePlantNetwork.org (accessed 2022/09/10). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources.

Luna B, Pérez B, Céspedes B and Moreno JM (2008b) Effect of cold exposure on seed germination of 58 plant species comprising several functional groups from a mid-mountain Mediterranean area. Ecoscience 15, 478-484.

Lutman PJW, Berry J and Freeman SE (2008) Seed production and subsequent seed germination of *Senecio vulgaris* (groundsel) grown alone or in autumn-sown crops. Weed Res. 48, 237-247.

Macedo M (1977) Dispersao de plantas lenhosas de uma campina Amazonica. Acta Amazon. 7 (1, supplement), 1-69.

Maguire JD and Overland A (1959) *Laboratory germination of seeds of weedy and native plants*. Washington Agric. Exp. Sta. Circ. No. 349.

Mahmoud A, El-Sheih AM and Basit SAE (1983) Germination of *Artemisia abyssinica* Sch. Bip. J. Coll. Sci. King Saud Univ. 14, 253-272.

Main CL, Steckel LE, Hayes RM and Mueller TC (2006) Biotic and abiotic factors influence horseweed emergence. Weed Sci. 54, 1101-1105.

Mancipe-Murillo C (2020) Propagacion de *Espeletiopsis corymbosa, Espeletia barclayana*, *Espeletia summapacis* y *Espeletia killipii* en condiciones de invernadero. Rev. Acad. Colombiana Cienc. Ex. Fis. Nat. 44, 780-793.

Manfreda VT, Alcaraz ML and Scaramuzzino RL (2020) Germinacion de *Baccharis dracunculifolia* subsp. *tandilensis*: caracterizacion basada en la temperature, la luz y la salinidad. Rodriguésia 71, e02642017.2020.

Mariko S, Kachi N, Ishikawa S-I and Furukawa A (1992) Germination ecology of coastal plants in relation to salt environment. Ecol. Res. 7, 225-233.

Marks MK (1983) Timing of seedling emergence and reproduction in some tropical dicotyledonous weeds. Weed Res. 23, 325-332.

Marks MK and Akosim C (1984) Achene dimorphism and germination in three composite weeds. Trop. Agric. (Trinidad) 61, 69-73.

Marks MK and Nwachuku AC (1986) Seed-bank characteristics in a group of tropical weeds. Weed Res. 26, 151-157.

Marks MK and Prince SD (1982) Seed physiology and seasonal emergence of wild lettuce *Lactuca serriola*. Oikos 38, 242-249.

Marquardt RT, Arenhardt TCP, Bezini JA, Vitorino MD and Adenesky-filho E (2018) Germinacao de sementes de *Vernonanthura discolor* (Spreng.) H.Rob. (Asteraceae) procedentes de diferentes arvores matrizes. Acta Biol. Catarinense 5, 14-21.

Marques FC and de Barros IBI (1999) Effect of different storage conditions on *Achyrocline satureoioides* (Asteraceae) seeds. Acta Hortic. 503, 105-109.

Marques FC and de Barros IBI (2000) Qualidade de sementes de marcela (*Achyrocline* *satureioides*) provenientes de duas populacoes do Rio Grande do Sul. Cienc. Rural 30, 241-247.

Martin A, Grzeskowiak V and Puech S (1995) Germination variability in three species in disturbed Mediterranean environments. Acta Oecol. 16, 479-490.

Martin RJ and Carnahan JA (1983) The effect of field storage and laboratory conditions on germination of five *Xanthium* species. Aust. J. Agric. Res*.* 34, 249-260.

Martinez ML, Valverde T and Moreno-Casasola P (1992) Germination response to temperature, salinity, light and depth of sowing in ten tropical dune species. Oecologia 92, 343-353.

Martínez-García F, Guerrero-García S and Pérez-García F (2012) Evaluation of reproductive success and conservation strategies for *Senecio coincyi* (Asteraceae), a narrow and threatened species. Aust. J. Bot. 60, 517-525.

Martínez-Villegas JA, Castillo-Argüero S, Márquez-Guzmáan J and Orozco-Segovia A (2018) Plant attributes and their relationship to the germination response to different temperatures of 18 species from central Mexico. Plant Biol. 20, 1042-1052.

Martinkova Z and Honek A (1997) Germination and seed viability in a dandelion, *Taraxacum officinale* Agg. Ochr. Rostl. 33, 125-133.

Martinkova Z, Honek A and Stolcova J (1997) The incidence of primary seed dormancy in weed species of the Czech Republic. Ochr. Rostl. 33, 265-279.

Masini ACA, Rovere AE and Pirk GI (2016) Germinacion de *Gutierrezia solbrigii* y *Senecio subulatus*, asteraceas endemics de Argentina. Phyton (Buenos Aires) 85, 314-323.

Mašková T and Poschlod P(2022) Soil seed bank persistence across time and burial depth in calcareous grassland habitats. Front. Plant Sci.12, 790867.

Mattana E, Daws MI and Bacchetta G (2009) Seed dormancy and germination ecology of *Lamyropsis microcephala*: a mountain endemic species of Sardinia (Italy). Seed Sci. &Technol. 37, 491-497.

Mattana E, Fenu G and Bacchetta G (2012) Seed production and in situ germination of *Lamyropsis microcephala* (Asteraceae), a threatened Mediterranean mountain

species. Arct. Anarct. Alp. Res. 44, 343-349.

Maw MG, Thomas AG and Stahevitch A (1985) The biology of Canadian weeds. 66. *Artemisia absinthium* L. Can. J. Plant Sci. 65, 389-400.

Maya P, Monzon Aand Ponce M (1988) Datos sobre la germinacion de especies endemicas Canarias. Bot. Macaronaesica 16, 67-80.

Mayeux HS, Jr. (1982) Germination of false broomweed (*Ericameria austrotexana*) seed. Weed Sci. 30, 597-601.

Mayeux HS, Jr. and Scifres CJ (1978) Germination of goldenweed seed. J. Range Manage. 31, 371-374.

McBurnie G (2002) Germination of central Australian plant seed after long-term storage. Comb. Proc. Int. Plant Prop. Soc. 52, 83-89.

McCarty MK and Scifres CJ (1969) Life cycle studies with musk thistle. Univ. Nebraska

Agric. Res. Bull. 230.

McCarty MK, Scifres CJ, Smith AL and Horst GL (1969) Germination and early seedling development of musk and plumeless thistles. Nebraska Agric. Exp. Sta. Res. Bull. 229.

McDonough WT (1969) Effective treatments for the induction of germination in mountain rangeland species. Northw. Sci. 43, 18-22.

McDonough WT (1975) Germination polymorphism in *Grindelia squarrosa* (Pursh)

Dunal. Northw. Sci. 49, 190-200.

McEvoy PB (1984) Dormancy and dispersal in dimorphic achenes of tansy ragwort, *Senecio jacobaea* L. (Compositae). Oecologia 61, 160-168.

McLaughlin SP and Linker JD (1987) Agronomic studies on gumweed: seed germination, planting density, planting dates, and biomass and resin production. Field Crops Res. 15, 357-367.

Medd RW and Lovett JV (1978) Biological studies of *Carduus nutans* (L.) ssp. *nutans*. I. Germination and light requirements of seedlings. Weed Res. 18, 363-372

Meiman PJ, Redente EF and Paschke MW (2009) Diffuse knapweed (*Centaurea diffusa* Lam.) seedling emergence and establishment in a Colorado grassland. Plant Ecol. 201, 631-638.

Melo PRB, Oliveira JA, Pinto JEBP, Castro EM, Vieira AR and Evangelista JRE **(**2007) Germinacao de aquenios de arnica (*Lychnophora pinaster* Mart.) armazenados em diferentes condicoes.Cienc. Agrotecnol.31, 75-82.

Mezynski PR and Cole DF (1974) Germination of dandelion seed on a thermogradient plate. Weed Sci. 22, 506-507.

Michaux B (1989) Reproductive and vegetative biology of *Cirsium vulgare* (Savi) Ten. (Compositae: Cynareae). New Zeal. J. Bot. 27, 401-414.

Mofokeng M, Prinsloo G and Kritzinger Q (2012) Germination response of four South African medicinal plants to a range of temperatures and treatments. Seed Sci. & Technol. 40, 123-128.

Mogensen SHA, Allen PS and Meyer SE (2001) Prechill temperature and duration are important in determining seed quality for 12 wildflowers. Seed Technol. 23, 145-150.

Mondoni A, Rossi G, Orsenigo S and Probert RJ (2012) Climate warming could shift the timing of seed germination in alpine plants. Ann. Bot. 110, 155-164.

Monemizadeh Z, Ghaderi-Far F, Sadeghipour HR, Siahmarguee A, Soltani E, Torabi B

and Baskin CC (2021) Variation in seed dormancy and germination among

populations of *Silybum marianum* (Asteraceae). Plant Species Biol. 36, 412-424.

Morales-Herrera A and Moreira-Palacios M (2020) Propagacion de *Erato polymnioides*, en combinaciones de sustratos, reguladores de crecimineto y agrupacion de plantulas. Agron. Costarricensis 44, 133-143.

Morgan JW (1998) Comparative germination responses of 28 temperate grassland species. Aust. J. Bot. 46, 209-219.

Morgan JW and Lunt ID (1994) Germination characteristics of eight common grassland and woodland forbs. Victorian Nat. 111, 10-17.

Mott JJ (1972) Germination studies on some annual species from an arid region of Western Australia. J. Ecol. 60, 293-304.

Mott JJ and McComb AJ (1975) Embryo dormancy and light requirements in the germination of *Helipterum craspedioides* (Compositae), an arid-zone annual. Ann. Bot. 39, 1071-1075.

Moura CC, Fonseca DC and Machado ELM (2016) Comportamento germinativo de *Baccharis platypoda* DC. em ambientes de formacoes savanicas. Heringeriana 10, 59-68.

Muniz M (2000) Influence de la temperatura y el fotoperiodo en la germinacion de semillas de cuatro malas hierbas comunes en Espana. Invest. Agric. Prod. Prot. Veg. 15, 253-258.

Muoghalu JI and Chuba DK (2005) Seed germination and reproductive strategies of *Tithonia diversifolia* (Hemsl.) Gray and *Tithonia rotundifolia* (P.M) Blake.

Appl. Ecol. Environ. Res. 3, 39-46.

Najda HG, Darwent, A and Hamilton G (1982) The biology of Canadian weeds. 54. *Crepis tectorum* L. Can. J. Plant Sci. 62, 473-481.

Nakamura I and Hossain MA (2009) Factors affecting the seed germination and seedling emergence of redflower ragleaf (*Crassocephalum crepidioides*). Weed Biol. Manage. 9, 315-322.

Nandula VK, Eubank TW, Poston DH, Koger CH and Reddy KN (2006) Factors affecting germination of horseweed (*Conyza canadensis*). Weed Sci. 54, 898-902.

Ndihokubwayo N, Nguyen V-T and Cheng D (2016). Effects of origin, seasons and

storage under different temperatures on germination of *Senecio vulgaris*

(Asteraceae) seeds. PeerJ 4, e2346.

Negrin VL and Zalba SM (2008) Germinacion de *Grindelia ventanensis* (Asteraceae),

una especie endemica del Sistema de Ventania (Buenos Aires). Bol. Soc. Argent.

Bot. 43, 261-267.

Nery MC, Davide AC, Silva EAA, Soares GCM and Nery FC (2014) Classificacao fisiologica de sementes florestais quanto a tolerancia a dessecacao e ao armazenmento. Cerne 20, 477-483.

Nichols GE (1934) The influence of exposure to winter temperatures upon seed germination in various native American plants. Ecology 15, 364-373.

Norsworthy JK and Oliveira M J (2007a) Light and temperature requirements for common cocklebur (*Xanthium strumarium*) germination during after-ripening under field conditions. Weed Sci. 55, 227-234.

Norsworthy JK and Oliveira M (2007b) A model for predicting common cocklebur (*Xanthium strumarium*) emergence in soybean. Weed Sci. 55, 341-345.

Noya MG, Cuquel FL and Panobianco M (2013) Morphological characterization and physiological potentila of *Stenachaenium megapotamicum* (Spreng.) Baker seeds. J. Seed Sci. 35, 292-295.

Nur M, Baskin CC, Lu JJ, Tan DY and Baskin JM (2014) A new type of non-deep

physiological dormancy: evidence from three annual Asteraceae species in the

cold deserts of Central Asia. Seed Sci. Res. 24, 301-314.

Nyamongo DO, Nyabundi J and Daws MI (2009) Germination and dormancy breaking requirements for *Vernonia galamensis* (Asteraceae). Seed Sci. & Technol. 37, 1-9.

Offord CA, McKensy ML and Cuneo PV (2004) Critical review of threatened species collections in the New South Wales Seedbank: implications for *ex situ* conservation of biodiversity. Pacific Conserv. Biol. 10, 221-236.

Okafor JC (1997) Conservation and use of traditional vegetables from woody forest species in southeastern Nigeria. No page numbers. *in* Guaino, L. (Ed.). *Traditional African vegetables. Promoting the conservation and use of underutilized and neglected crops*. 16. Proceedings of the IPGRI international workshop on genetic resources of traditional vegetables in Africa: Conservation and use, 29-31 August 1995, ICRAF-HQ, Nairobi, Kenya. Institute of Plant Genetics and Crop Plant Research, Gatersleben/International Plant genetic Resources Institute, Rome.

Okusanya OT (1979) An experimental investigation into the ecology of some maritime cliff species. J. Ecol. 67, 293-304.

Oliveira MAS and Innecco R (2012) Germinacao de sementes de jambu (*Acmella oleracea* – Asteraceae) sob influencia de fotoperiodo e tempratra Rev. Electonica Biol. 5, 105-118.

Olivieri I, Swan M and Gouyon, P-H (1983) Reproductive system and colonizing

strategy of two species of *Carduus* (Compositae). Oecologia 60, 114-117.

Onen H (2006) The influence of temperature and light on seed germination of mugwort (*Artemisia vulgaris* L.). J. Plant Dis. Prot. 2006 (special issue 20), 393-399.

Otzen D and Doornbos G (1980) Observations on germination and seedling establishment of *Senecio erucifolius* L. in relation to its northern boundary. Acta Bot. Neerl. 29, 419-427.

Ozel CA (2017) Effective seed dormancy breaking and regeneration of *Centaurea tchihatcheffii* Fisch. et. Mey. Fresenisu Environ. Bull. 26, 2197-2204.

Owens DW and Call CA (1985) Germination characteristics of *Helianthus maximiliana* Schrad. and *Simsia calva* (Engelm. & Gray) Gray. J. Range Manage. 38, 336-339.

Padgett PE, Vazquez L and Allen EB (1999) Seed viability and germination behavior of the desert shrub *Encelia farinosa* Torrey and A. Gray (Compositae). Madroño 46, 126-133.

Pammel LH and Lummis GM (1903) The germination of weed seeds. Proc. Soc. Prom.

Agric. Sci. 24, 89-92.

Pamplona JP, Souza MF, Sousa DMM, Mesquita HC, Freitas CDM, Lins HA, Torres SB and Silva DV (2020) Seed germination of *Bidens subalternans* DC. exposed to different environmental factors. PLoS ONE 15: e0233228.

Panebianco R and Willemsen RW (1976) Seed germination of *Hieracium pratense*, a successional perennial. Bot. Gaz. 137, 255-261.

Panetta FD (1979) Germination and seed survival in the woody weed, groundsel bush (*Baccharis halimifolia* L.). Aust. J. Agric. Res. 30, 1067-1077.

Panetta FD (1988) Factors determining seed persistence of *Chondrilla juncea* L. (skeleton weed) in southern Western Australia. Aust. J. Ecol. 13, 211-224.

Panetta FD (2009) Seed persistence of the invasive aquatic plant, *Gymnocoronis*

*spilanthoides* (Asteraceae). Aust. J. Bot. 57, 670-674.

Pannier F (1969) Untersuchungen zur keimung und kultur von *Espeletia*, eines endemischen megaphyten der alpinen zone (paramos) der Venezolanischen-Kolumbianischen Anden. Ber. Deutsch. Bot. Gesell. 82, 559-571.

Park CH, Lee KC and Chang KJ (1999) Edible sprout production from *Ainsliaea acerifolia* seeds. Plant Res. 2, 127-132.

Parks CA and Boyle TH (2002) Germination of *Liatris spicata* (L.) Willd. seed is enhanced by stratification, benzyladenine, or thiourea but not gibberellic acid. HortScience 37, 202-205.

Partzsch M (2009) Germination biology of eight selected xerothermic grassland species - Part 1. Hercynia N. F. 42, 239-254.

Patterson DT and Mortensen DA (1985) Effects of temperature and photoperiod on common crupina (*Crupina vulgaris*). Weed Sci. 33, 333-339.

Pazmiño Araujo GA (2021) Germinacion in vitro de semillas de seis especies de la familia Asteraceae obtenidas del Parque Nacional Cayambe Coca. Ph.D. dissertation. Universidad de Las Fueras Armadas, Sangolqui, Ecuador.

Pegtel DM (1972) Effects of temperature and moisture on the germination of two ecotypes of *Sonchus arvensis* L. Acta Bot. Neerl. 21, 48-53.

Pegtel DM (1976) On the ecology of two varieties of *Sonchus arvensis* L. Ph.D thesis. State University of Groningen, Groningen, The Netherlands.

Peishi Z Plummer JA, Turner DW, Choengsaat D and Bell DT (1999) Low- and high-temperature storage effects on viability and germinability of seeds of three Australian Asteraceae. Aust. J. Bot. 47, 265-275.

Pelton J (1956) A study of seed dormancy in eighteen species of high altitude Colorado plants. Butler Univ. Bot. Stud. 13, 74-84.

Pendleton RL and Pendleton BK (2014) germination patterns of a suite of semiarid grassland forbs from central New Mexico. Native Plants 15, 17-28.

Peralta-García C, Sánchez-Coronado ME, Orozco-Segovia A, Orozco-Segovia S and Pisanty-Barch I (2016) Germination of four riparian species in a disturbed semi-arid ecosystem. S. Afr. J Bot. 106, 110-118.

Pérez-Fernández MA and Rodríguez-Echeverría S (2003) Effect of smoke, charred wood, and nitrogenous compounds on seed germination of ten species from woodland in central-western Spain. J. Chem. Ecol. 29, 237-251.

Pérez-Fernández MA, Rodríguez-Echeverría S, Calvo-Magro E and David-Antonio C (2003) Germination of selected perennial plant species from western Spain under nitrogen, light and wet and dry heat treatments. J. Med. Ecol. 4, 23-33.

Pérez-Matínez BA and Castañeda-Garzón SL (2017) Establecimiento in vitro de compuestas nativas silvestres a partir del cultivo de semillas. For. Veracruzana 19, 1-10..

Peter G, Leder CV, Calvo DA, Cruz, AM and Robles SST (2014) Evaluacion de tratamientos pregerminativos en seis especies nativas del ecotono monte-espinal del noreste de la Patgonia. BioScriba 7, 1-10.

Picciau R, Pritchard HW, Mattana E and Bacchetta G (2019) Thermal thresholds for seed germination in Mediterranean species are higher in mountain compared with lowland areas. Seed Sci. Res. 29, 44-54.

Picciau R, Serra S, Porceddu M and Bacchetta G (2018) Seed traits and germination behaviour of four Sardinian populations of *Helichrysum microphyllum* subsp. *tyrrhenicum* (Asteraceae) along an altitudinal gradient. Plant Biol. 21, 498-506.

Pierce SM and Moll EJ (1994) Germination ecology of six shrubs in fire-prone Cape fynbos. Vegetatio 110, 25-41.

Piotto B and Di Noi A (2003) Seed propagation of Mediterranean trees and shrubs [Manuali e linee guida]. Agency for the Protection of the Environment and for Technical Services (APAT), Rome.

Pirbalouti AG and Golparvar A (2006) Seed germination and dormancy breaking of three species of Iranian medicinal herbs. Crop Res. 32, 556-559.

Pita JM (1996) Reqerimientos de luz para la germinacion de algunas especies Macaronesicas. Bot. Macaronesica 17, 37-46.

Pita JM (1989) Nota sobre el efecto de las giberelinas sobre la germinacion de algunas especies endemicas de las Islas Canarias. Invest. Agric. Prod. Prot. Veg. 4, 19-23.

Pluenneke R and Joham HE (1972) Studies on the germination of saladillo (*Varilla*

*texana* Gray). Phyton (Buenos Aires) 30, 141-145.

Plummer JA and Bell DT (1995) The effect of temperature, light and gibberellic acid (GA3) on the germination of Australian everlasting daisies (Asteraceae, Tribe Inuleae). Aust. J. Bot. 43, 93-102.

Popay AI (1973) Germination and dormancy in the seeds of certain east African weed species. Proc. 4th Asian-Pacific Weed Sci. Soc. Conf., Rotorua, New Zealand 1973, 77-81.

Popay AI (1974) Investigations into the behaviour of the seeds of some tropical weeds. I. Laboratory germination tests. East Afr. Agric. For. J. 40, 31-43.

Popay AI and Roberts EH (1970a) Factors involved in the dormancy and germination of *Capsella bursa-pastoris* (L.) Medik. and *Senecio vulgaris* L. J. Ecol. 58, 103-122.

Popay AI. and Roberts EH (1970b) Ecology of *Capsella bursa-pastoris* (L.) Medik. and *Senecio vulgaris* L. in relation to germination behaviour. J. Ecol. 58, 123-139.

Povilaitis B (1956) Dormancy studies with seeds of various weed species. Proc. Int. Seed

Test. Assoc. 21, 87-111.

Puglia G, Grimaldi S, Carta A, Pavone P and Toorop P (2015) Pericarp structure of *Glebionis coronaria* (l.) Cass. ex Spach (Asteraceae) cypselae controls water uptake during germination. Seed Sci. Res. 25, 255-266.

Puttha R, Goggi AS, Gleason ML, Jogloy S, Kesmala T, Vorasoot N, Banterng P and

Patanothai A (2014) Pre-chill with gibberellic acid overcomes seed dormancy of

Jerusalem artichoke. Agron. Sustain. Dev. 34, 869-878.

Qaderi MM, Presti A and Cavers PB (2005) Dry storage effects on germinability of scotch thistle (*Onopordum acanthium*) cypselas. Acta Oecol. 27, 67-74.

Quarmby AL, Ainsley PJ and Kirby G (2007) Seed longevity and germination ecology of the threatened, Kangaroo Island endemic, *Achnophora tatei,* no page number. *in* Turner S, Merritt D, Clarke S, Commander L and Dixon K (eds.). The 2nd International Society for Seed Science meeting on seeds and the environment, Perth, Western Australia (abstract).

Rai JPN and Tripathi RS (1982) Adaptive significance of seed reserves in ray achenes in *Galinsoga parviflora* Cav. Experientia 38, 804-805.

Rai JPN and Tripathi RS (1984) Population dynamics of different seeding cohorts of two co-existing annual weeds, *Galinsoga ciliata* and *G. parviflora*, on two contrasting sites. Acta Oecol. 5, 357-368.

Rai JPN and Tripathi RS (1987) Germination and plant survival and growth of *Galinsoga parviflora* Cav. as related to food and energy content of its ray- and disc-achenes.

Acta Oecol. 8, 155-165.

Ramirez AHM, Jhala AJ and Singh M (2012) Germination and emergence characteristics

of common beggar’s rick (*Bidens alba*). Weed Sci. 60, 374-378.

Rashid I, Reshi Z, Allaie RR. and Wafari BA (2007) Germination ecology of [the] invasive alien *Anthemis cotula* helps it synchronise its successful recruitment with favorable habitat conditions. Ann. Appl. Biol. 150, 361-369.

Reddy KN and Singh M (1992) Germination and emergence of hairy beggarticks (*Bidens pilosa*). Weed Sci. 40, 195-199.

Ren Y-P, Gu S, Jiang S, Wang Y-Z and Zheng S-X (2008) Influence of light, temperature and salinity on seed germination of *Flaveria bidentis* (Compositae), a new exotic plant. Acta Bot. Yunnanica 30, 477-484.

Ren Z and Abbott RJ (1991) Seed dormancy in Mediterranean *Senecio vulgaris* L. New Phytol. 117, 673-678.

Reynolds CJ, Long RL, Flematti GR, Cherry H and Turner SR (2013) Karrikins promote germination of physiologically dormant seeds of *Chrysanthemoides monilifera* ssp. *monilifera* (boneseed). Weed Res. 54, 48-57.

Ribeiro JWF, Ronqui RA and Kolb RM (2013) Germinacao e desenvolvimento inicial de *Gochnatia barrosii* (Asteraceae). Poster. 64th Congress Nacional de Botanica. Belo Horizonte, Brazil. 10-15 Novembro 2013.

Roberts HA and Chancellor RJ (1979) Periodicity of seedling emergence and achene survival in some species of *Carduus, Cirsium* and *Onopordum*. J. Appl. Ecol. 16, 641-647.

Robocker WC (1977) Germination of seeds of common yarrow (*Achillea millefolium*) and its herbicidal control. Weed Sci. 25, 456-459.

Roché CT and Thill, DC (2001) Biology of common crupina and yellow starthistle, two Mediterranean winter annual invaders in western North America. Weed. Sci. 49, 439-447.

Roché CT, Thill, DC and Shafii B (1997a) Estimation of base and optimum temperatures for seed germination in common crupina (*Crupina vulgaris*). Weed Sci. 45, 529-533.

Roche S, Dixon KW and Pate JS (1997b) Seed ageing and smoke: Partner cues in the amerlioration of seed dormancy in selected Australian native species. Aust. J. Bot. 45, 783-815.

Romero FR, Delate K and Hannapel DJ (2005) The effect of seed source, light during germination, and cold-moist stratification on seed germination in three species of *Echinacea* for organic production. HortScience 40, 1751-1754.

Romo JT and Young JA (2002) Temperature profiles and the effects of field environments on germination of silver sagebrush. Native Plants J. 3 (1), 5-13.

Rondon JN, Sassaki RM, Zaidan LB. and Felippe GM (2001) Effects of moisture content and temperature during storage on germination of the achenes of *Bidens gardneri* Baker. Rev. Brasil. Bot. 24, 35-41.

Ronnenberg K, Wesche K, Pietsch M and Hensen I (2007) Seed germination of five mountain steppe species of central Asia. J. Arid Environ. 71, 404-410.

Roque N and Hind DJN (2001) *Ianthopappus*, a new genus of the Tribe Mutisieae (Compositae). Novon 11, 97-101.

Rosbakh S, Baskin CC and Baskin JM (2020) Nikolaeva et al.’s reference book on seed dormancy and germination. Ecology 101, e03049.

Rout JR, Das R, Prusti AB and Sahoo SL (2009) Effects of scarification, cold

stratification and gibberellic acid treatment on germination of *Elephantopus*

*scaber* L. seeds. Amer.-Eurasia. J. Agric. Environ. Sci.6, 689-691.

Ruggiero PGC and Zaidan LBP (1997) Estudo de desenvolvimento de *Viguiera robusta*

Gardn., uma Asteraceae de cerrado. Rev. Brasil. Bot. 20, 1-9.

Ruiz de Clavijo E (1995) The ecological significance of fruit heteromorphism in the

amphicarpic species *Catanache lutea* (Asteraceae). Int. J. Plant Sci. 156, 824-833.

Ruiz de Clavijo, E (2001) The role of dimorphic achenes in the biology of the annual

weed *Leontodon longirrostris.* Weed Res. 41, 275-286.

Ruiz de Clavijo E (2005) The reproductive strategies of the heterocarpic annual

*Calendula arvensis* (Asteraceae). Acta Oecol. 28, 119-126.

Russell M (2011) Dormancy and germination pre-treatments in Willamette Valley native

plants. Northw. Sci. 85, 389-402.

Ruziev F, Pakr K, Umurzokov M, Khaitov B, Bo AB, Jia WQ, Hien LT, Choi JS and

Park KW (2020) Seed germination ecology of giant ragweed (*Ambrosia trifida*) in

Korea*.* Weed & Turfgrass Sci. 9, 21-28.

Sabo DG, Johnson GV, Martin WC and Aldon EF (1979) Germination requirements of 19 species of arid land plants. USDA For. Serv. Res. Paper RM-210.

Sakpere AMA, Adedeji O and Folashade AT (2013) Flowering, post-pollination development and propagation of ebolo (*Crassocephalum crepidioides*) (Benth.) S. Moore in Ile-Ife, Nigeria. J. Sci. & Technol. 33, 37-49.

Salac SS and Hesse MC (1975) Effects of storage and germination conditions on the germination of four species of wild flowers. J. Amer. Soc. Hort. Sci. 100, 359-361.

Sanches MC and Valio IFM (2002) Seed and seedling survival of some climber species in a southeast Brazilian tropical forest. Biotropica 34, 323-327.

Sánchez JA, Montejo L., Gamboa A, Albert-Puentes D and Hernández F (2015) Grminacion y dormancia de arbustos and trepadoras del bosque siempreverde de ls Sierra del Rosario, Cuba. Pastos Forrajes 38, 11-28.

Santos-Gally R, Muğoz M and Franco G (2019) Efecto de la latencia sobre la germinacion de *Tithonia diversifolia* (Asteraceae), pp. 417-425 *in* Rivera J, Peri P, Chará J, Días M, Colcombet L and Murgueitio E (Eds.), *Congreso internacional sobre sistemas silvopastoriles: por una producción sostenible*. Libro de Actas. Editorial CIPAV.

Sapzhenkova T, Syenchyna B. and Druchas IV (1986) Seed germination in some species of Carpathian mountain plants in culture conditions. Ukrainskyi Bot. Zhur. 43, 28-31.

Sarmento ECS, Pereira KTO, Oliveira FS, Leal CCP, Torres SB and Dutra AS **(**2019) Morphology and germination of *Acmella oleracea* L. R. Jansen under different temperatures and photoperiods. Rev. Cienc. Agron*.* 50, 660-668.

Sassaki RM, Rondon J., Zaidan LBPand Felippe G. (1999a) Germination of seeds from herbaceous plants artificially stored in cerrado soil. Rev. Brasil. Biol. 59, 271-279.

Sassaki RM, Zaidan LBP and Felippe GM (1999b) Effect of storage of achenes *of Bidens gardneri* Baker on light sensitivity during germination. Rev. Brasil. Bot. 22, 75-81.

Schmidl L (1972) Biology and control of ragwort, *Senecio jacobaea* L., in Victoria, Australia. Weed Res. 12, 37-45.

Schutte BJ, Regnier EE and Harrison SK (2008) The association between seed size and seed longevity among maternal families of *Ambrosia trifida* L. populations. Seed Sci. Res. 18, 201-211.

Schutte BJ, Regnier EE and Harrison SK (2012) Seed dormancy and adaptive seedling emergence timing in giant ragweed (*Ambrosia trifida*). Weed Sci. 60, 19-26.

Schütz W **(**1999) Some ecological and biogepgraphical aspects of achene dormancy and afterripening in Asteraceae, pp. 153-168 *in* Breckle S-W, Schweizer B and Arndt U (Eds.), *Results of worldwide ecological studies*. Proceedings of the first symposium by the A.F.W. Schimper-Foundation. Hohenheim, October 1998. Stuttgart, Verlag Günter Heimbach.

Schütz W and Milberg P (1997) Seed germination in *Launaea arborescens*: a continuously flowering semi-desert shrub. J. Arid Environ. 36, 113-122.

Schütz W, Milberg P and Lamont BB (2002) Seed dormancy, after-ripening and light requirements of four annual Asteraceae in south-western Australia. Ann. Bot. 90, 707-714.

Schwienbacher E and Erschbamer B (2002) Longevity of seeds in a glacier foreland of the Central Alps - a burial experiment. Bull. Geobot. Inst. ETH 68, 63-71.

Schwienbacher E, Navarro-Cano JA, Neuner G and Erschbamer B (2011) Seed dormancy in alpine species. Flora 206, 845-856.

Scifres CJ and McCarty MK (1969) Some factors affecting germination and seedling growth of Scotch thistle. Univ. Nebraska Coll. Agric. Res. Bull. 228.

Scott D (1975) Some germination requirements of *Celmisia* species. New Zealand J. Bot. 13, 653-664.

Secor JB and Farhadnejad DO (1978) The seed germination ecology of three species of *Gaillardia* that occur in the gypsumland areas of eastern New Mexico. Southw. Nat. 23, 181-186.

Seglias AE, Finch J and Kramer AT (2020) Germination behaviour of forbs native to the southwestern United States following exposure to short-term seed bank conditions (-20°C). Seed Sci. Res. 30, 81-91.

Seglias AE, Williams E, Bilge A and Kramer AT (2018) Phylogeny and source climate impact seed dormancy and germination of restoration-relevant forb species. PLoS ONE 13, e0191931.

Semwal JK, Purohit AN and Gaur RD (1983) Seed germination in some Himalayan alpine plants. Seed Res. 11, 42-46.

Sen DN and Chatterji UN (1968) Ecology of desert plants and observations on their seedlings. I. Germination behaviour of seeds. Bull. Bot. Soc. Bengal 22, 251-258.

Seo HT, Choi BK, Moon YG, Kim SW, Park KD and Kwon SB (2018) Effect of light conditions and wet cold treatments on seed germination in several wild vegetables. J. Agric., Life and Environ. Sci. 30, 64-72.

Shalaby AF and Youssef MM (1967) Contribution to the autecology of *Achillea*

*fragantissima* (Forsk.) Sch. Bip. with reference to its oil content. Acta Agron.

Acad. Scient. Hung. 16, 375-382.

Sharma RK, Sharma S and Sharma SS (2006) Seed germination behaviour of some medicinal plants of Lahaul and Spiti cold desert (Himachal Pradesh): implications for conservation and cultivation. Curr. Sci. 90, 1113-1118.

Sharma S and Sharma RK (2010) Seed physiological aspects of pushkarmool (*Inula*

*racemosa*), a threatened medicinal herb: response to storage, cold stratification,

light and gibberellic acid. Curr. Sci. 99, 1801-1806.

Shetty, M. S. (1967). Germination and seedling establishment of *Sphaeranthus indicus* Linn. in relation to soil moisture. Trop. Ecol. 8, 138-143.

Shimono Y and Kudo G (2005) Comparisons of germination traits of alpine plants between fellfield and snowbed habitats. Ecol. Res. 20, 189-197.

Shumway SW and Bertness MD (1992) Salt stress limitation of seedling recruitment in a salt marsh plant community. Oecologia 92, 490-497.

Shipley B and Parent M (1991) Germination responses of 64 wetland species in relation to seed size, minimum time to reproduction and seedling relative growth rate. Funct. Ecol. 5, 111-118.

Simlat M, Ptak A, Skrzypek, Warchoł M, Morańska E and Piórkowska E (2018) Melatonin significantly influences seed germination and seedling growth of *Stevia rebaudiana* Bertoni. PeerJ 6, e5009.

Singh B and Amritphale D (1992) Effect of light and its interaction with nitrate and ammonium ions in seed germination of *Caesulia axillaris*. Physiol. Plant. 85, 43-48.

Smreciu EA, Currah RS and Toop E (1988) Viability and germination of herbaceous perennial species native to southern Alberta grasslands. Can. Field-Nat. 102, 31-38.

Sommerville KD, Martyn AJ and Offord CA (2013) Can seed characteristics or species distribution be used to predict the stratification requirements of herbs in the

Australian Alps. Bot. J. Linnean Soc*.* 172, 187-204.

Sosa LR and Fernandez EA (2000) Germinacion y desarrollo de plantulas de *Baccharis*

*crispa* Spreng. (Asteraceae) en la Provincia de San Luis (Argentina). Phyton

(Buenos Aires) 66, 149-154.

Sotes GJ, Cavieres LA and Gómez-González S (2021) High competitive ability of

*Centaurea melitensis* L. (Asteraceae) does not increase in the invaded range. Biol.

Inv. 23, 693-703.

Souza ADE, Botezelli L and Mendes PN (2021) Study of storage on seed germination of

*Chresta sphaerocephala* DC. – Asteraceae. Res. Soc. Dev. 10, e5011097893.

Souza Filho PRM and Takaki M (2011) Dimorphic cypsela germination and plant growth

in *Synedrella nodiflora* (l.) Gaertn. (Asteraceae). Brazil. J. Biol. 71, 541-548.

Souza Filho PRM and Takaki M (2019) Germination constraints of dicarpic cypselae of

*Bidens pilosa* L. Brazil. J. Biol. 79, 383-394.

Stammel B, Kiehl K and Pfadenhauer J (2006) Effects of experimental and real land use on seedling recruitment of six fen species. Basic Appl. Ecol. 7, 334-346.

Stergios BG (1976). Achene production, dispersal, seed germination, and seedling

establishment of *Hieracium aurantiacum* in an abandoned field community. Can.

J.Bot. 54, 1189-1197.

Steshenko AP (1966) Biology of newly collected seeds of the high mountain zone plants of the Pamirs. Bot. Zhur. 48, 965-978.

Suleiman MK, Bhat NR, Abdal MS, Zaman S, Jacob S and Thomas RR (2009) Germination studies in *Rhanterium epapposum*. World Appl. Sci. J. 7, 468-471.

Sullivan GA and Daley RH (1981) Directory to resources on wildflower propagation. National Council of State Garden Clubs, Inc. prepared at Missouri Botanical Garden, St. Louis.

Sun HZ, Lu JJ, Tan DY, Baskin JM and Baskin CC (2009) Dormancy and germination characteristics of the trimorphic achenes of *Garhadiolus papposus* (Asteraceae), an annual ephemeral from the Junggar Desert, China. S. Afr. J. Bot. 75, 537-545.

Sveshnikova M (1948) On germination capacity of plants of the higher mountain deserts of Pamir. Dokl. Akad. Nauk SSSR 61, 925-927.

Tamado T, Schütz W and Milberg P (2002) Germination ecology of the weed *Parthenium hysterophorus* in eastern Ethiopia. Ann. Appl. Biol. 140, 263-270.

Tamayo-Rincón M, Rodríguez-Perea L and Escobar-Torres W (2010) Estudio de la

propagacion sexual del arboloco *Montanoa quadrangularis* Schultz Bipontianus

Asteraceae. Universitas Scientiarum 15, 38-48.

Tang AJ, Tian MH and Long CL (2009) Seed dormancy and germination of three herbaceous perennial desert ephemerals from the Junggar Basin, China. Seed Sci. Res. 19, 183-189.

Tanowitz BD, Salopek PF and Mahall BE (1987) Differential germination of ray and disc achenes in *Hemizonia increscens* (Asteraceae). Amer. J. Bot. 74, 303-312.

Teketay D (1993) Germination ecology of *Vernonia galamensis* (Cass.) Less. var. *ethiopica* M. G. Gilbert, a new industrial oilseed crop. Trop. Ecol. 34, 64-74.

Teketay D (1998a) Soil seed bank at an abandoned Afromontane arable site. Fedd. Repert. 10, 161-174.

Teketay D (1998b)Germination ecology of three endemic species (*Inula confertiflora*, *Hypericum quartinianum* and *Lobelia rhynchopetalum*) from Ethiopia. Trop. Ecol. 39, 69-77.

Tobe, K., Zhang, L. and Omasa, K. (2006). Seed germination and seedling emergence of three *Artemisia* species (Asteraceae) inhabiting desert sand dunes in China. Seed Sci. Res. 16, 61-69.

Tolstead WL (1941) Germination habits of certain sand-hill plants in Nebraska. Ecology 22, 393-397.

Torrico AIG, Jiménez-Alfaro B and Pascual F (2011) Implicaciones de la viabilidad y germinacion de semillas en la conservacion de *Aster pyrenaeus* Desf. ex DC. (Asteraceae). Actes del IX Colloqui Internacional de Botanica Pirenaico-Cantabrica a Ordino, Andorra. Pp. 147-154.

Towers IR, Merritt DJ, Erickson TE, Mayfield MM and Dwyer JM (2022) Variable seed bed microsite conditions and light influence germination in Australian winter annuals. Oecologia 189, 865-875.

Tsuyuzaki S and Miyoshi C (2009) Effects of smoke, heat, darkness and cold stratification on seed germination of 40 species in a cool temperate zone in northern Japan. Plant Biol. 11, 369-378.

Tudela-Isanta M, Fernández-Pascual E, Wijayasinghe M, Orsenigo S, Rossi G, Pritchard HW and Mondoni A (2017) Habitat-related seed germination traits in alpine habitats. Ecol. Evol. 8, 150-161.

Ulian T, Mattana E, Pritchard HW and Skwierinski R (2013) Seasonality effects on plant phenology and seed ecology in *Oritrophium peruvianum* (Asteraceae), a threatened tropical alpine species. S. Afr. J. Bot. 88, 278-285.

Ungar IA and Hogan WC (1970) Seed germination in *Iva annua* L. Ecology 51, 150-154.

Upfold SJ and Van Staden J (1990) The germination characteristics of *Tithonia*

*rotundifolia*. Ann. Bot. 66, 57-62.

Valencia-Diaz S and Montana C (2003) Effects of seed age, germination substrate, gibberellic acid, light, and temperature on seed germination in *Flourensia cernua* (Asteraceae), a Chihuahuan Desert shrub. Southw. Nat. 48, 1-13.

Van Auken OW (2001) Germination requirements of seeds of *Helianthus paradoxus* (Asteraceae). Texas J. Sci. 53, 157-170.

van der Meijden E and van der Waals-Kooi RE (1979) The population ecology of *Senecio jacobaea* in a sand dune system. I. Reproductive strategy and the biennial habit. J. Ecol. 67, 131-153.

van der Toorn J (1980) On the ecology of *Cotula coronopifolia* L. and *Ranunculus sceleratus* L. Acta Bot. Neerl. 29, 385-396.

van der Toorn, J. and ten Hove, H. J. (1982) On the ecology of *Cotula coronopifolia* L. and *Ranunculus sceleratus* L. Oecol. Plant. 3, 409-418.

van der Valk AG (1974) Environmental factors controlling the distribution of forbs on coastal foredunes in Cape Hatteras National Seashore. Can. J. Bot. 52, 1057-1073.

van Rooden J, Akkermans LMA and van der Veen R (1970) A study on photoblastism in seeds of some tropical weeds. Acta Bot. Neerl. 19, 257-264.

Velten SB and Garcia QS (2005) Efeitos da luz e da temperatura na germinacao de sementes of *Eremanthus* (Asteraceae), ocorrentes na Serra do Cipo, MG, Brasil. Acta Bot. Brasil. 19, 753-761.

Vivar-Evans S, Barradas VL, Sanchez-Coronado ME, de Buen AG and Orozco-Segovia A (2006) Ecophysiology of seed germination of wild *Dahlia coccinea* (Asteraceae) in a spatially heterogeneous fire-prone habitat. Acta Oecol. 29, 187-195.

Vivian-Smith G, Hinchliffe D and Weber J (2005) Fecundity and germination of the invasive aquatic plant, senegal tea (*Gymnocoronis spilanthoides* (D. Don) DC.). Plant Prot. Quart. 20, 145-147.

Voigt JW (1977) Seed germination of true prairie forbs. J. Range Manage. 30, 439-441.

Voronkova NM, Verkholat VP and Kholina AB (2011) Specific features of plants at early stages of the colonization of loose volcanic matter. Biol. Bull. 38, 237-241.

Walck JL, Baskin CC and Baskin JM (1997a) Comparative achene germination

requirements of the rockhouse endemic *Ageratina luciae-brauniae* and its

widespread close relative *A. altissima* (Asteraceae). Amer. Midl. Nat. 137, 1-12.

Walck JL Baskin JM and Baskin CC (1997b) A comparative study of the seed germination biology of a narrow endemic and two geographically-widespread species of *Solidago* (Asteraceae). 1. Germination phenology and effect of cold stratification on germination. Seed Sci. Res. 7: 47-58.

Walker LR (1995) Factors affecting seed germination of the Mauna Kea silversword in Hawaii. Pacific Sci. 49, 205-211.

Walker LR and Powell EA (1999) Regeneration of the Mauna Kea silversword *Argyroxiphium sandwicense* (Asteraceae) in Hawaii. Biol. Conserv. 89, 61-70.

Wang J-H, Chen W, Ma R-J, Baskin CC, Baskin JM, Qi W and Chen Z-L (2016) role of short-term cold stratification on seed dormancy break and germination of alien species in southeastern China. Plant Ecol. 217, 383-392.

Wang J-H, Cui X-L, Chen X-L and Du G-Z (2007) Comparative study of seed germination, seed size and their relationships in mesad and siccocolous. Chin. J. Plant Ecol. 31, 1037-1045.

Wang J-H, Du G-Z, Cui X-L, Zheng X-F and Qi W (2009) Germination characteristics of 61 common woody species from the eastern Qinghai-Tibet Plateau of China and their life history correlates. Zhi. Sheng. Xueb. 33, 171-179.

Wang Y-L, Li X-R, Liu L-C, Zhao J-C, Song G and Zhou YY (2018) Dormancy and germination strategies of a desert winter annual *Echinops gmelina* Turcz. in a temperate desert of China. Ecol. Res. 34, 74-84.

Washitani I (1984) Germination responses of a seed population of *Taraxacum officinale* Weber to constant temperatures including the supra-optimal range. Plant Cell Environ. 7, 655-659.

Washitani I and Masuda M (1990) A comparative study of the germination characteristics of seeds from a moist tall grassland community. Funct. Ecol. 4, 543-557.

Washitani I and Nishiyama S (1992) Effects of seed size and seedling emergence time on the fitness components of *Ambrosia trifida* and *A. artemisiaefolia* var. *elatior* in competition with grass perennials. Plant Species Biol. 7, 11-19.

Washitani I and Ogawa K (1989) Germination responses of *Taraxacum platycarpum* seeds to temperature. Plant Species Biol. 4, 123-130.

Weber E (2000) Biological flora of central Europe: *Solidago altissima* L. Flora 195, 123-134.

Weekley CW, Tucker J, Valligny S and Menges ES. (2008) Germination ecology of *Liatris ohlingerae* (S. F. Blake) B. L. Rob. (Asteraceae), an endangered herb endemic to Florida scrub. Castanea 73, 235-250.

Weirsbye IM and Witkowski ETF (2002) Seed fate and practical germination methods for 46 perennial species that colonize gold mine tailings and acid mine drainage-polluted soils in the grassland biome. Natural Forests and Woodlands Symposium III. Multiple use management - policy refinements and scientific progress. Department of Water Affairs and Forestry, Kruger National Park, South Africa.

Weldon LW, Bohmont DW and Alley HP (1959) The interrelation of three environmental factors affecting germination of sagebrush seed. J. Range Manage. 12, 236-238.

Wesche K, Pietsch M, Ronnenberg K, Undrakh R and Hensen I (2006) Germination of fresh and frost-treated seeds from dry central Asian steppes. Seed Sci. Res.16, 123-136.

Whisenant SG and Ueckert DN (1982) Factors influencing bitterweed seed germination. J. Range Manage. 35, 243-245.

Williams JT (1966) Variation in the germination of several *Cirsium* species. Trop. Ecol. 7, 1-7.

Williams R (1986) Research into propagation of Australian native plants. Comb. Proc. Int. Plant Prop. Soc. 36, 183-187.

Willis AJ and Groves RH (1991) Temperature and light effects on the germination of seven native forbs. Aust. J. Bot. 39, 219-228.

Wilson RG, Jr. (1979) Germination and seedling development of Canada thistle. Weed Sci. 27, 146-151.

Wilson RG, Jr. (1982) Germination and seedling development of fringed sagebrush (*Artemisia frigida*). Weed Sci. 30, 102-105.

Wilson RG, Jr. and McCarty MK (1984) Germination, and seedling and rosette development of Flodman thistle (*Cirsium flodmanii*). Weed Sci. 32, 768-773.

Wood BL, McDaniel KC and Clason D (1997) Broom snakeweed (*Gutierrezia sarothrae*) dispersal, viability, and germination. Weed Sci. 45, 77-84.

Woosaree J and James B (2004) Development of native species adapted to the sandy soils of the Parkland Ecoregion of Alberta. Alberta Research Council Inc., Bag 4000 Vegreville, Alberta.

Wu H, Walker S, Rollin MJ, Tan DKY, Robinson G and Werth J. (2007) Germination, persistence, and emergence of flaxleaf fleabane (*Conyza bonariensis* (L.) Cronquist). Weed Biol. Manage. 7, 192-199.

Yamashita OM, Albuquerque MCF, Guimaräes SC, Silva JLD and Carvalho MAC (2008) Influencia da temperature e da luz na germinacao de sementes de couve-cravinho (*Porophyllum ruderale* (Jacq.) Cass.) Rev. Brasil. Sementes 30, 202-206.

Yamashita OM and Guimaraes SC (2011) Germinacao de sementes de *Conyza canadensis* e *Conyza bonariensis* em diferentes condicioes de temperatura e luminosidade. Planta Daninha 29, 333-342.

Young JA, Clements CD, Pitcairn MJ, Balciunas J, Enloe S, Turner C and Harmon D (2005) Germination-temperature profiles for achenes of yellow starthistle (*Centaurea solstitialis*). Weed Technol. 19, 815-823.

Young, J. A. and Evans, R. A. (1979). Arrowleaf balsamroot and mules ear seed germination. J. Range Manage. 32, 71-74.

Yuan X and Wen B(2018) Seed germination response to high temperature and water stress in three invasive Asteraceae weeds from Xishuangbanna, SW China. PLoS ONE13, e0191710.

Zaman S, Padmesh S and Tawfiq H (2010) Germination ecology of *Rhanterium epapposum* Oliv. Amer. J. Appl. Sci. 7, 1321-1326.

Zanetti M, Dayrell RLC, Wardel MV, Damesceno A, Fernandes T, Castilho A, Santos FMG and Silveira FAO (2020) Seed functional traits provide support for ecological restoration and ex situ conservation in the threatened Amazon ironstone outcrop flora. Front. Plant Sci. 11, 599496.

Zedler PH, Guehlstorff K, Scheidlinger C and Gautier CR (1983) The population ecology of a dune thistle, *Cirsium rhothophilum* (Asteraceae). Amer. J. Bot. 70, 1516-1527.

Zelaya IA, Owen MDK and Pitty A (1997) Germination characteristics of eight weed species from the dry tropics. Ceiba 38, 137-149.

Zeng Y, Wang Y, Sa R and Tian X (2002) Response of seed germination of three xeromorphic shrubs to drought stress. Chin. J. Appl. Ecol. 13, 953-956.

Zeng Y-J, Wang Y-R and Zhang JM (2010) Is reduced seed germination due to water limitation: a special survival strategy used by xerophytes in arid dunes. J. Arid Environ. 74, 508-511.

Zheng Y, Xie Z Gao, Y Shimizu, H, Jiang L and Yu Y (2003. Ecological restoration in northern China: germination characteristics of nine key species in relation to air seedling. Belgium J. Bot. 136, 129-138.

Zheng Y, Xie Z, Gao Y, Jiang L, Xing X Shimizu H and Rimmington GM (2005a) Effects of light, temperature and water stress on germination of *Artemisia sphaerocephala*. Ann. Appl. Biol. 146, 327-335.

Zheng Y, Xie Z, Yu Y., Jiang L, Shimizu H and Rimmington GM (2005b) Effects of burial in sand and water supply regime on seedling emergence of six species. Ann. Bot. 95, 1237-1245.

Zlesak DC (2007) Factors affecting seed germination of *Heliopsis helianthoides* (L.) Sweet. Seed Sci. & Technol. 35, 577-594.

Zuur-Isler D (1982) Germinating behaviour and early life phases of some species from alpine serpentine soils. Berich. Geobot. Inst. ETH, Stiftung Rubel 49, 76-107.