Las Cienegas

GRASSES

GUIDE







GRASSES

of

Las Cienegas National Conservation Area

(version 1.0)

Original Concept

Grass Collection and photocopying

Cover Design

Assembly

Gita Bodner

Kay Fagan

Rose Manchon

Joy Fisher Betty Harris Jo Haslett Nina Tout Ron Tiller Linda Vaught

Introduction:

The Las Cienegas National Conservation Area hosts one of the finest grassland valleys left in the southwestern US. This grassland watershed supports some ten miles of perennial stream—a rare gem of green running through southern Arizona's arid landscape. Together these grasslands and wetlands provide homes for a remarkable array of wildlife, including over 230 bird species, 60 mammals, 40 reptiles and amphibians, and at least five endangered species. Humans have made their living here for 10,000 years or more. This area is also part of one of Arizona's oldest working ranches, the Empire Ranch, in operation since the 1860's. Members of the surrounding community care deeply about this landscape, and involve themselves in conservation and management concerns through the Sonoita Valley Planning Partnership and other local groups.

The Bureau of Land Management recognized these natural and cultural resource values when it acquired this parcel in 1988, managed it as the Empire-Cienega Conservation Area, and worked with stakeholders to develop an ecosystem management plan for the site. The U.S. Congress further recognized the site as a national treasure, elevating its designation to the Las Cienegas National Conservation Area in 2001.

In 2004, the Bureau of Land Management invited The Nature Conservancy to help develop strong and efficient science tools for the site's adaptive management program. Together, we gather data that lets us track the health of these grasslands and wetlands. With input from a stakeholder advisory group, BLM uses this information to make management decisions on actions such as grazing schedules and prescribed fire to improve managers' effectiveness in meeting goals of ecological health. Sharing these data and the processes by which decisions are made also fosters good relations among the area's many stakeholders, and helps resolve conflicts as they arise. You can read more about our work together at azconservation.org.

This grass guide grew out of five years of measuring changes in grass composition and cover. Each year staff of BLM, The Nature Conservancy, and our volunteers and partners wrestled with identifying grasses among the 100+ species that occur in the area. Published keys and flora lists were helpful, but we craved a resource that would more rapidly jog our memories to recognize species we'd seen before, enable us to compare plants in the field to reliably-identified specimens, and share our love of native grasses with others. Stellar volunteer Kay Fagan ran with the idea of making our own grass guide and turned it into a work of art. We see this guide as a living resource. We look forward to adding species, images and notes as users make them available, and correcting errors or updating names as users bring them to our attention.

Many people helped us with grass identifications and fieldwork. Special thanks go to Charlotte Reeder and the late John Reeder, grass experts extraordinaire who identified many of our specimens with expert eyes and a long-time passion for Southwestern grasses. Thanks to Phil Jenkins and other staff of the University of Arizona Herbarium. Dan Robinette verified identifications for several of the specimens included in this guide. Thanks also to the many volunteers who helped count grasses at Las Cienegas since 2004, and to Nature Conservancy staff Dave Gori, Heather Schussman, and Ron Tiller who have worked extensively on this project. Last but not least, BLM Las Cienegas staff Karen Simms, Keith Hughes, Grant Drennen, and Kristen Duarte have made this work possible though their ongoing commitment to gathering and using solid grassland science, along with the area's dedicated stakeholders.

Enjoy!

Gita Bodner, Conservation Ecologist, The Nature Conservancy in Arizona

Tips for using this guide:

All plant specimens were copied life-sized onto 8½ x 11" paper except where rulers indicate otherwise. Keep in mind, however, that many grasses can mature at small sizes if rainfall is low, or can reach much larger proportions with abundant water. In our work and in this guide, we have focused on perennial grasses. Annuals were included where they looked similar to perennial species, and opportunistically for other reasons.

This guide will be of some use far beyond the bounds of Las Cienegas. We collected most specimens in the upper Cienega Creek watershed and south into the Sonoita Creek watershed, in an area referred to as the Sonoita Plain. This semi-desert grassland area spans an elevation of ~4000-5500 feet. Many of these grass species range throughout similar elevations in Arizona, New Mexico, Sonora, Chihuahua, and beyond. As one gets farther from this location and elevation, the species included here will become less common and more other species will appear.

Grass foliage colors can also be quite variable, as can other features. Some, like the reddish cast of plains lovegrass stems, can help a trained eye recognize this grass at a glance, but shouldn't be considered a definitive characteristic. For detailed descriptions of diagnostic characteristics, we recommend using the resources listed below.

Resources we've found especially useful: (annotations courtesy of the Appleton-Whittell Research Ranch, part of the Las Cienegas NCA)

A Catalogue of the Flora of Arizona by J. Harry Lehr, 1978, published by The Desert Botanical Garden.

Arizona Range Grasses: Their Description, Forage Value and Management by Robert R. Humphrey. Revised 1970. University of Arizona Press, Tucson AZ. Line drawings, descriptions, and grazing information focusing on grass.

Field Guide to the Plants of Arizona by Anne Orth Epple. 1995. Lew Ann Publishing Company, Mesa, AZ. Color plates and text descriptions and habitats of many plants found in Arizona, arranged by life form, flower color, and family.

Grasses of Southeastern Arizona is one of several plant volumes in a series produced by the Coronado RC & D Area, Inc., and Conservation Districts of Southeastern Arizona. These are pocket sized, and include descriptions and general information on each topic group.

Grasses of the Southwestern United States by Frank. W. Gould. 1993 (6th printing). University of Arizona Press, Tucson. Line drawings, keys, and descriptions to aid in identifying native and introduced grasses.

Manual of the Grasses of the United States (2 volumes) by A.S. Hitchcock. 1950. Revised by Agnes Chase. Dover Publications, Inc., New York. The standard for grass identification.

North American Range Plants by Stubbendieck, Hatch and Butterfield. 1997. University of Nebraska Press Line drawings of a lot of our plants.

Weeds of the West by Tom D. Whitson, Editor and Author, and others, Revised 1992. Published by the Western Society of Weed Science in cooperation with the Western United Sates Land Grant Universities Cooperative Extension Services. Photographs and species descriptions of plants that often cause problems for land managers.

An Illustrated Guide to Arizona Weeds by Kittie F. Parker. 1972. University of Arizona Press, Tucson AZ. Line drawings, descriptions, and control mechanisms for some plant species that are growing where they aren't wanted.

Watch for updated versions of this guide at azconservation.org, and check out:

Arizona Native Plant Society: http://www.aznps.org

USDA Plants Database: http://plants.usda.gov

Appleton-Whittell Research Ranch: http://www.audubonresearchranch.org/

Utah State University Manual of Grasses for North America and Flora North America North of Mexico,

http://herbarium.usu.edu/grassmanual/

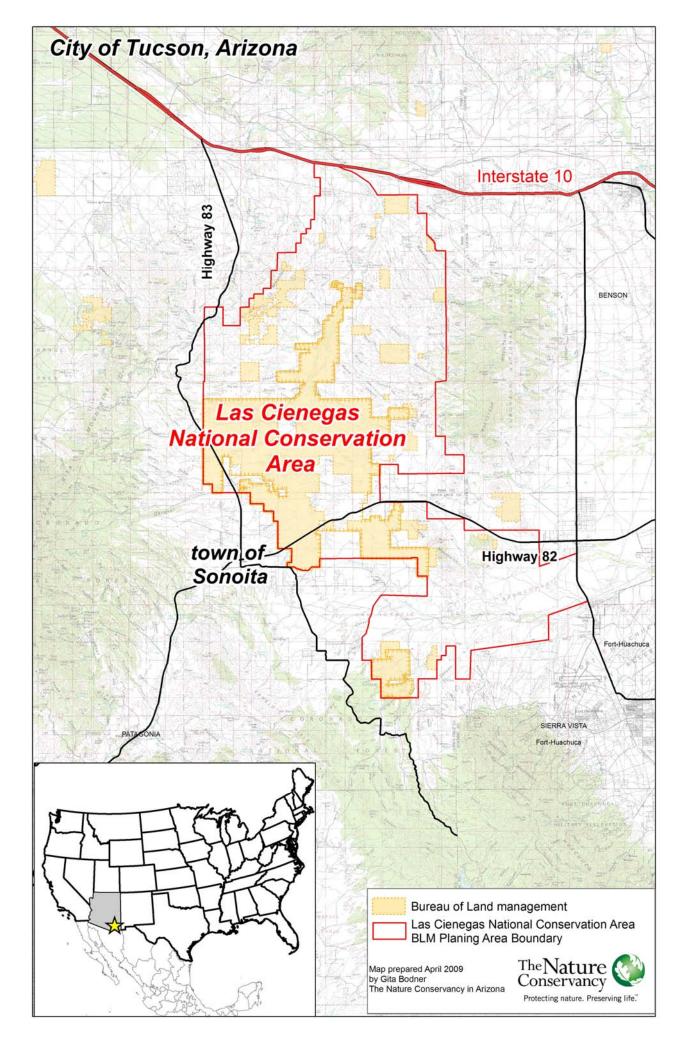


TABLE OF CONTENTS

Bureau of Land Management Las Cienegas National Conservation Area Pima and Santa Cruz counties, Arizona

Sorted by Scientific Name

Perennial Grasses

			Native or
Spp#	Scientific Name	Common Name	introduced
1	Aristida ternipes	spidergrass	N
2	Bothriochloa barbinodis	cane beardgrass	N
3	Bothriochloa ischaemum	yellow bluestem	I
4	Bouteloua chondrosioides	sprucetop grama	N
5	Bouteloua curtipendula	sideoats grama	N
6	Bouteloua eludens	Santa Rita grama	N
7	Bouteloua eriopoda	black grama	N
8	Bouteloua gracilis	blue grama	N
9	Bouteloua hirsuta	hairy grama	N
10	Bouteloua radicosa	purple grama	N
11	Bouteloua repens	slender grama	N
12	Bouteloua rothrockii	Rothrock's grama	N
13	Digitaria californica	Arizona cottontop	N
14	Digitaria cognata var pubiflora	western witchgrass	N
15	Digitaria insularis	sourgrass	N
16	Elymus elymoides	squirreltail	N
17	Elionurus barbiculmis	wooly bunchgrass	N
18	Enneapogon desvauxii	spike pappusgrass	N
19	Eragrostis curvula var conferta	Boer lovegrass	I
20	Eragrostis curvula var curvula	weeping lovegrass	I
21	Eragrostis intermedia	plains lovegrass	N
22	Eragrostis lehmanniana	Lehmann's lovegrass	I
23	Eragrostis superba	Wilman lovegrass	I
24	Erioneuron pulchellum	fluffgrass	N
25	Heteropogon contortus	tanglehead	N
26	Hilaria belangeri	curly mesquite	N
27	Hilaria mutica	tobosa	N
28	Leptochloa dubia	green sprangletop	N
29	Lycurus setosus	wolftail	N
30	Muhlenbergia arenicola	sand muhly	N
31	Muhlenbergia emersleyi	bullgrass	N
32	Muhlenbergia porteri	bush muhly	N
33	Muhlenbergia rigens	deergrass	N
34	Muhlenbergia rigida	purple muhly	N
35	Panicum antidotale	blue panic	I
36	Panicum hallii	Hall's panic	N
37	Panicum obtusum	vine mesquite	N

			Native or		
<u>Spp #</u>	Scientific Name	Common Name	<u>introduced</u>		
38	Paspalum distichum	knotgrass	Ν		
39	Schizachyrium cirratum	Texas bluestem	N		
40	Setaria leucopila	streambed bristlegrass	N		
41	Sorghum halepense	Johnsongrass	l		
42	Sporobolus cryptandrus	sand dropseed	N		
43	Sporobolus wrightii	big sacaton	N		
44	Trachypogon montufari	crinkleawn	N		
45	Tridens grandiflorus	shortleaf tridens	N		
46	Tridens muticus	slim tridens	N		
Annual Grasses					
47	Aristida adscensionis	sixweeks threeawn	N		
48	Bouteloua barbata	sixweeks grama	N		
49	Echinochloa crus-galli	barnyardgrass	1		
50	Eragrostis pectinacea var miserrima	desert lovegrass	N		
51	Eragrostis pectinacea var pectinacea	spreading lovegrass	Ν		
52	Eriochloa acuminata	cupgrass	N		
53	Setaria grisebachii	Grisebach bristlegrass	Ν		

Legend

N = Native I = Introduced

Native Status information courtesy of http://plants.usda.gov/

TABLE OF CONTENTS

Bureau of Land Management

Las Cienegas National Conservation Area Pima and Santa Cruz counties, Arizona

Perennial Grasses

Perennial Grasses					
<u>Spp #</u>	Scientific Name	Common Name	Native or introduced		
13	Digitaria californica	Arizona cottontop	N		
43	Sporobolus wrightii	big sacaton	Ν		
7	Bouteloua eriopoda	black grama	N		
8	Bouteloua gracilis	blue grama	N		
35	Panicum antidotale	blue panic	I		
19	Eragrostis curvula var conferta	Boer lovegrass	I		
31	Muhlenbergia emersleyi	bullgrass	N		
32	Muhlenbergia porteri	bush muhly	N		
2	Bothriochloa barbinodis	cane beardgrass	Ν		
44	Trachypogon montufari	crinkleawn	N		
26	Hilaria belangeri	curly mesquite	N		
33	Muhlenbergia rigens	deergrass	N		
24	Erioneuron pulchellum	fluffgrass	N		
28	Leptochloa dubia	green sprangletop	N		
9	Bouteloua hirsuta	hairy grama	N		
36	Panicum hallii	Hall's panic	N		
41	Sorghum halepense	Johnsongrass	l 		
38	Paspalum distichum	knotgrass	N		
22	Eragrostis lehmanniana	Lehmann's lovegrass	l		
21	Eragrostis intermedia	plains lovegrass	N		
10	Bouteloua radicosa	purple grama	N		
34	Muhlenbergia rigida	purple muhly	N		
12	Bouteloua rothrockii	Rothrock's grama	N		
42	Sporobolus cryptandrus	sand dropseed	N		
30	Muhlenbergia arenicola	sand muhly	N		
6	Bouteloua eludens	Santa Rita grama	N		
45	Tridens grandiflorus	shortleaf tridens	N		
5	Bouteloua curtipendula	sideoats grama	N		
11	Bouteloua repens	slender grama	N		
46	Tridens muticus	slim tridens	N		
15	Digitaria insularis	sourgrass	N		
1	Aristida ternipes	spidergrass	N		
18	Enneapogon desvauxii	spike pappusgrass	N		
4	Bouteloua chondrosioides	sprucetop grama	N		
16 40	Elymus elymoides	squirreltail	N		
40 25	Setaria leucopila	streambed bristlegrass	N		
25	Heteropogon contortus	tanglehead	N		
39	Schizachyrium cirratum	Texas bluestem	N		
27	Hilaria mutica	tobosa	N		

<u>Spp #</u>	Scientific Name	Common Name	Native or introduced	
37 20 14 23	Panicum obtusum Eragrostis curvula var curvula Digitaria cognata var pubiflora Eragrostis superba	vine mesquite weeping lovegrass western witchgrass Wilman lovegrass	N N 	
29 17 3	Lycurus setosus Elionurus barbiculmis Bothriochloa ischaemum	wolftail wooly bunchgrass yellow bluestem	N N I	
Annual Grasses				
49 52 50 53 48 47 51	Echinochloa crus-galli Eriochloa acuminata Eragrostis pectinacea var miserrima Setaria grisebachii Bouteloua barbata Aristida adscensionis Eragrostis pectinacea var pectinacea	barnyardgrass cupgrass desert lovegrass Grisebach bristlegrass sixweeks grama sixweeks threeawn spreading lovegrass	 N N N N N	

<u>Legend</u>

N = Native I = Introduced

Native Status information courtesy of http://plants.usda.gov/



Both rioch loa barbinodis

The Nature Conservancy

Scientific name: Bothriochloa barbinodis

Common name: Cane beardgrass

Las Cienegas NCA Pima County AZ 2008





ered a vegerorefer to ,oe'

The Nature Conservancy



Scientific name: Bouteloua chondrosioides

Common name: Sprucetop grama

Las Cienegas NCA Pima County AZ 2008

Bouteloua curtipendula The Nature Conservancy Protecting nature. Preserving life." Scientific name: Bouteloua curtipendula Common name: Sideoats grama _as Cienegas NCA Pima County AZ 2008







The Nature Conservancy Protecting nature. Preserving life.

Scientific name: Bouteloua gracilis

Common name: Blue grama

Las Cienegas NCA Pima County AZ 2008























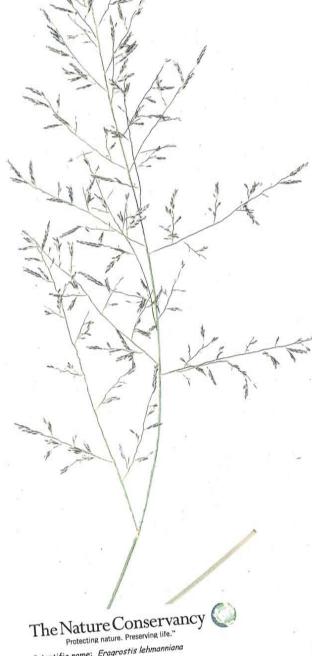






The Nature Conservancy Protecting nature, Preserving life,"

Scientific name: Eragrostis curvula war. conferta Common name: Boers lovegrass Audubon Research Ranch, Cochise Co. AZ 9-2008



Scientific name: Eragrostis lehmanniana

Common name: Lehmann's lovegrass

Audubon Research Ranch, Cochise Co. AZ 9-2008





Erionewron joulahellum (H.B.K.)



The Nature Conservancy (

Scientific name: Erioneuron pulchellum

Common name: Fluffgrass

Las Cienegas NCA Pima Co. AZ 2008















