

Las Cienegas

GRASSES GUIDE



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GRASSES

of

Las Cienegas National Conservation Area

(version 1.0)

Original Concept

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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 through 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 States 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/>

City of Tucson, Arizona

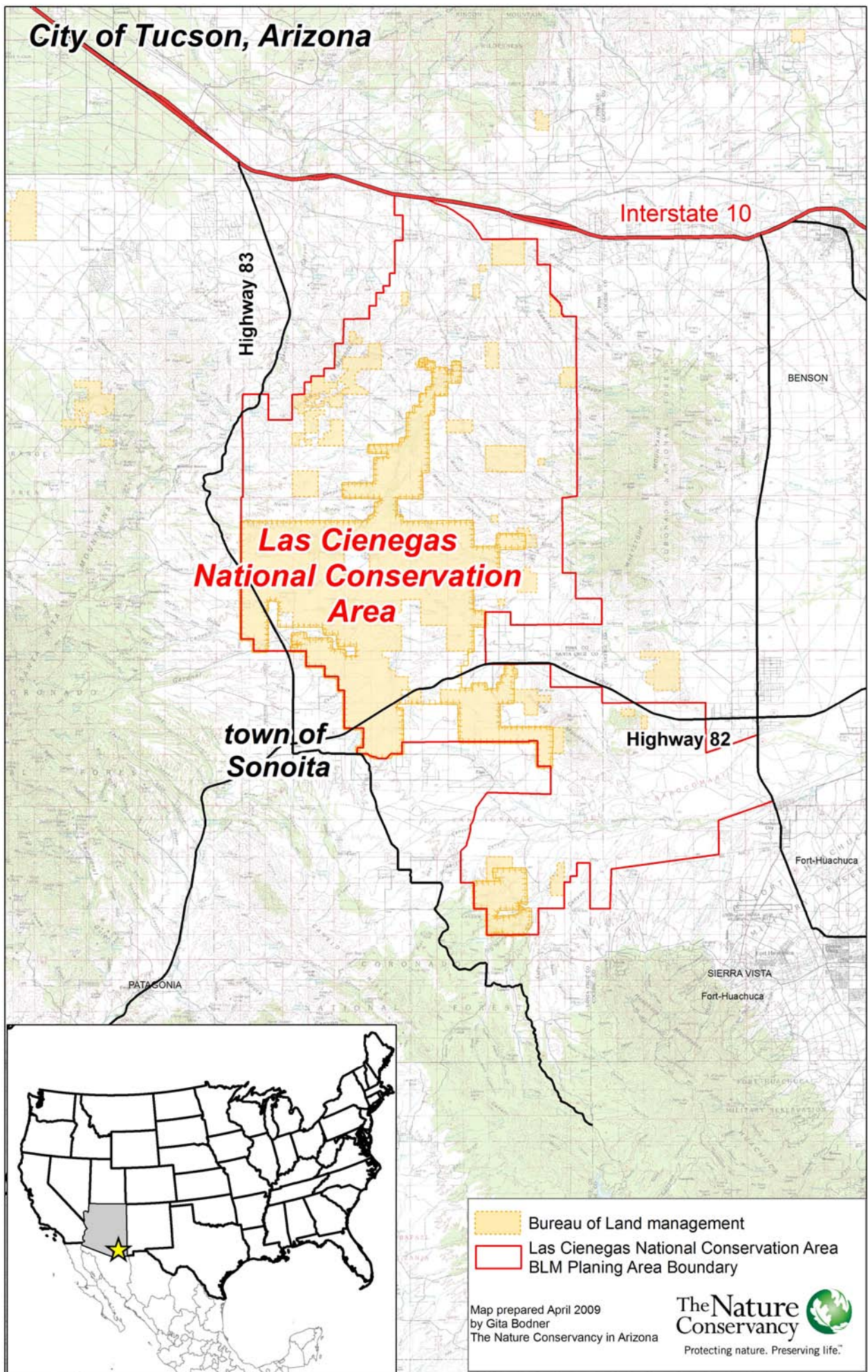


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Bureau of Land Management Las Cienegas National Conservation Area Pima and Santa Cruz counties, Arizona

Sorted by Scientific Name

Perennial Grasses

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

<u>Spp #</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Native or introduced</u>
38	<i>Paspalum distichum</i>	knotgrass	N
39	<i>Schizachyrium cirratum</i>	Texas bluestem	N
40	<i>Setaria leucopila</i>	streambed bristlegrass	N
41	<i>Sorghum halepense</i>	Johnsongrass	I
42	<i>Sporobolus cryptandrus</i>	sand dropseed	N
43	<i>Sporobolus wrightii</i>	big sacaton	N
44	<i>Trachypogon montufari</i>	crinkleawn	N
45	<i>Tridens grandiflorus</i>	shortleaf tridens	N
46	<i>Tridens muticus</i>	slim tridens	N

Annual Grasses

47	<i>Aristida adscensionis</i>	sixweeks threeawn	N
48	<i>Bouteloua barbata</i>	sixweeks grama	N
49	<i>Echinochloa crus-galli</i>	barnyardgrass	I
50	<i>Eragrostis pectinacea var miserrima</i>	desert lovegrass	N
51	<i>Eragrostis pectinacea var pectinacea</i>	spreading lovegrass	N
52	<i>Eriochloa acuminata</i>	cupgrass	N
53	<i>Setaria grisebachii</i>	Grisebach bristlegrass	N

Legend

N = Native

I = Introduced

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

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19	<i>Eragrostis curvula var conferta</i>	Boer lovegrass	I
31	<i>Muhlenbergia emersleyi</i>	bullgrass	N
32	<i>Muhlenbergia porteri</i>	bush muhly	N
2	<i>Bothriochloa barbinodis</i>	cane beardgrass	N
44	<i>Trachypogon montufari</i>	crinkleawn	N
26	<i>Hilaria belangeri</i>	curly mesquite	N
33	<i>Muhlenbergia rigens</i>	deergrass	N
24	<i>Erioneuron pulchellum</i>	fluffgrass	N
28	<i>Leptochloa dubia</i>	green sprangletop	N
9	<i>Bouteloua hirsuta</i>	hairy grama	N
36	<i>Panicum hallii</i>	Hall's panic	N
41	<i>Sorghum halepense</i>	Johnsongrass	I
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45	<i>Tridens grandiflorus</i>	shortleaf tridens	N
5	<i>Bouteloua curtipendula</i>	sideoats grama	N
11	<i>Bouteloua repens</i>	slender grama	N
46	<i>Tridens muticus</i>	slim tridens	N
15	<i>Digitaria insularis</i>	sourgrass	N
1	<i>Aristida ternipes</i>	spidergrass	N
18	<i>Enneapogon desvauxii</i>	spike pappusgrass	N
4	<i>Bouteloua chondrosioides</i>	sprucetop grama	N
16	<i>Elymus elymoides</i>	squirreltail	N
40	<i>Setaria leucopila</i>	streambed bristlegrass	N
25	<i>Heteropogon contortus</i>	tanglehead	N
39	<i>Schizachyrium cirratum</i>	Texas bluestem	N
27	<i>Hilaria mutica</i>	tobosa	N

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17	<i>Elionurus barbiculmis</i>	wooly bunchgrass	N
3	<i>Bothriochloa ischaemum</i>	yellow bluestem	I

Annual Grasses

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53	<i>Setaria grisebachii</i>	Grisebach bristlegrass	N
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51	<i>Eragrostis pectinacea</i> var <i>pectinacea</i>	spreading lovegrass	N

Legend

N = Native

I = Introduced

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



Aristida ternipes Cav. var.
ternipes

JK

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Scientific name: *Aristida ternipes*
var. *ternipes*

Common name: Spidergrass
Las Cienegas NCA Pima County AZ 2008

A dried grass specimen of Bothriochloa barbinodis is shown against a white background. The specimen consists of a single long, slender stem with a dense, feathery panicle at the top. To the right of the main stem are several other dried stems, some showing the characteristic twisted or flattened shape of the leaves. A small white label with handwritten text is placed near the base of the main stem.

*Bothriochloa
barbinodis*

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Scientific name: *Bothriochloa barbinodis*

Common name: Cane beardgrass

Las Cienegas NCA Pima County AZ 2008



Bothriochloa ischaemum
(L.) Keng

LCNCA KA15 9-6-06

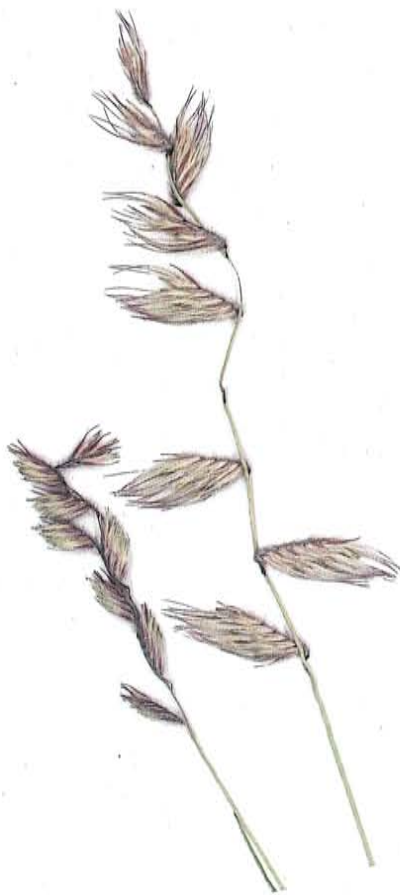
(18)

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Scientific name: *Bothriochloa ischaemum*

Common name: Yellow bluestem

Las Cienegas NCA Pima County AZ 2006



Bouteloua chondrosioides (A.B.K.)
Bentham ex S. Watson (JK)

lighter & denser
of color
200



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Scientific name: *Bouteloua chondrosioides*

Common name: Sprucetop grama

Las Cienegas NCA Pima County AZ 2008



Bouteloua curtipendula

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Scientific name: *Bouteloua curtipendula*

Common name: Sideoats grama

Las Cienegas NCA Pima County AZ 2008

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Scientific name: *Bouteloua eludens*

Common name: Santa Rita grama

Las Cienegas NCA Pima County AZ 2008

Handwritten signature

Handwritten initials



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Scientific name: *Bouteloua eriopoda*

Common name: Black grama

Las Cienegas NCA, Pima County AZ 2008



*Bouteloua
gracilis*

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Scientific name: *Bouteloua gracilis*

Common name: Blue grama

Las Cienegas NCA Pima County AZ 2008



Bouteloua hirsuta

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Scientific name: *Bouteloua hirsuta*

Common name: Hairy grama

Las Cienegas NCA Pima County AZ 2008



*Bouteloua
radicosa*

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Scientific name: *Bouteloua radicosa*

Common name: Purple grama

Las Cienegas NCA Pima County AZ 2008



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Scientific name: *Bouteloua repens*

Common name: Slender grama

Piety Hill Rd, Pima County AZ 2008



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Scientific name: *Bouteloua rothrockii*
Common name: Rothrock grama

Las Cienegas NCA, Pima County AZ 2008

A dried plant specimen of Digitaria californica is shown against a white background. The plant consists of several long, thin, green leaves that are slightly curved. There are also some dried, brownish stems and leaves. Two long, thin, light-colored seed heads are visible, one in the upper left and one in the upper right. A small white label with black text is placed near the bottom center of the plant.

Digitaria californica

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Scientific name: *Digitaria californica*

Common name: Arizona cottonlop

Las Cienegas NCA Pima County AZ 2008



Digitaria cognata

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Scientific name: *Digitaria cognata*
var. *pubiflora*

Common name: Western witchgrass
Las Cienegas NCA Pima County AZ 2008



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Scientific name: *Digitaria insularis*

Common name: Sourgrass

Los Cienegas NCA, Pima County AZ 2008



*Elymus
elymoides*

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Scientific name: *Elymus elymoides*

Common name: Squirrel tail

Las Cienegas NCA Pima County AZ 2008

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Scientific name: *Elyonurus barbiculmis*

Common name: Woolly bunchgrass

Las Cienegas NCA Pima County AZ 2008

W. Hackel

(JR)

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Scientific name: *Elyonurus barbiculmis*

Common name: Woolly bunchgrass

Las Cienegas NCA Pima County AZ 2008

A dried botanical specimen of Eneapogon desvauxii is shown against a white background. The plant consists of several thin, upright stems with long, narrow, green leaves. At the top of each stem is a dense, elongated, spike-like inflorescence (pappus) that is light brown or tan in color. The base of the plant shows a cluster of roots and lower leaves.

Eneapogon
desvauxii

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Scientific name: *Eneapogon desvauxii*

Common name: Spike pappusgrass

Las Cienegas NCA Pima County AZ 2008



Eragrostis curvula (Schrad.)
Nees var. *curvula*

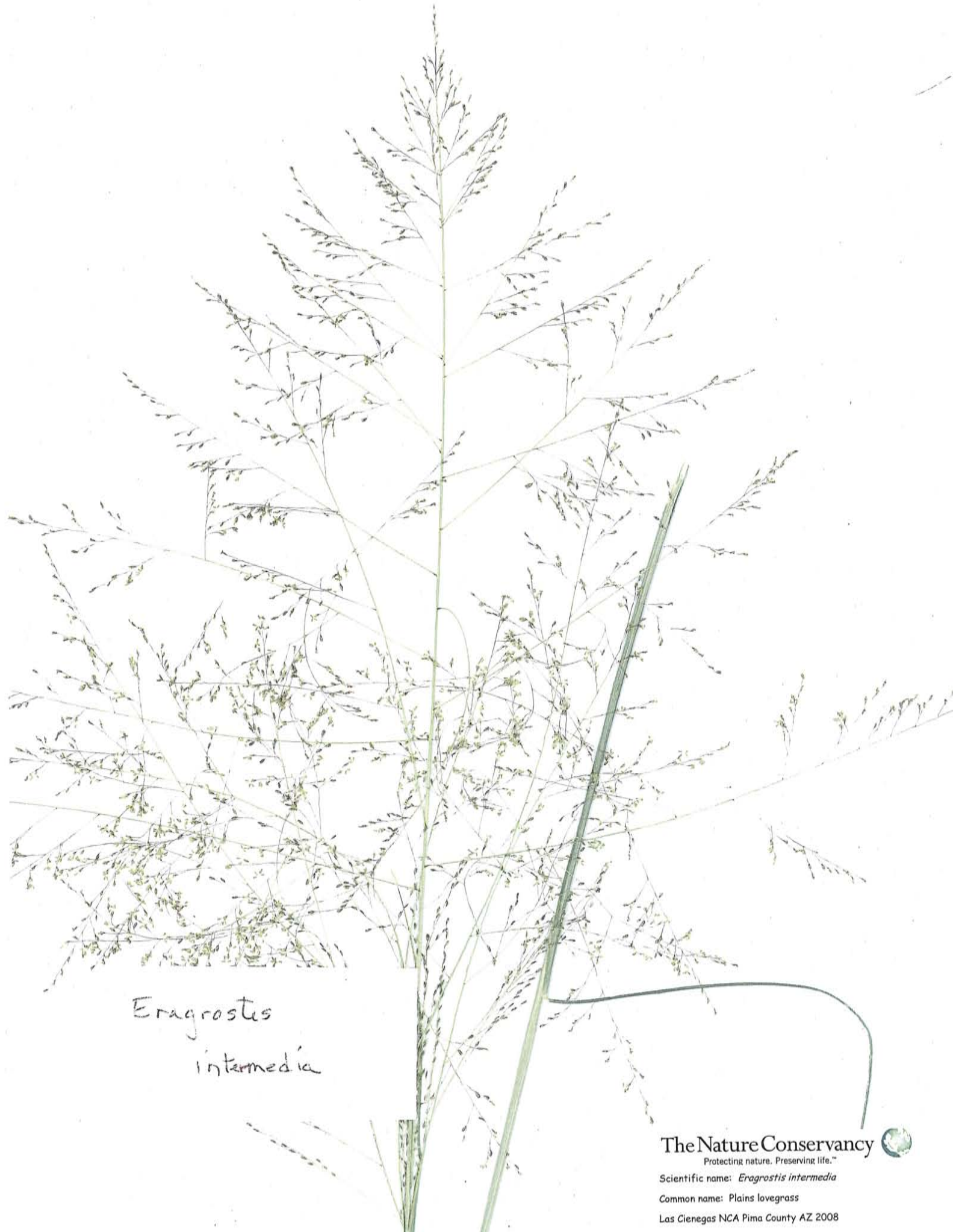
JR

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Scientific name: *Eragrostis curvula*
var. *curvula*

Common name: Boer lovegrass
Las Cienegas NCA Pima County AZ 2008



Eragrostis
intermedia

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Scientific name: *Eragrostis intermedia*

Common name: Plains lovegrass

Las Cienegas NCA Pima County AZ 2008

A dried plant specimen of Eragrostis lehmanniana is mounted on a white background. The specimen consists of several thin, green, blade-like leaves and a few more robust, yellowish-brown culms. The inflorescence is a large, open panicle with many small, dark, spike-like flowers. The plant is positioned diagonally across the frame, with the base at the bottom right and the panicle extending towards the top left.

Eragrostis lehmanniana Nees

JR

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Scientific name: *Eragrostis lehmanniana*

Common name: Lehmann's lovegrass

Las Cienegas NCA Pima County AZ 2008



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Scientific name: *Eragrostis curvula*
var. *conferta*

Common name: Boers lovegrass

Audubon Research Ranch, Cochise Co. AZ 9-2008



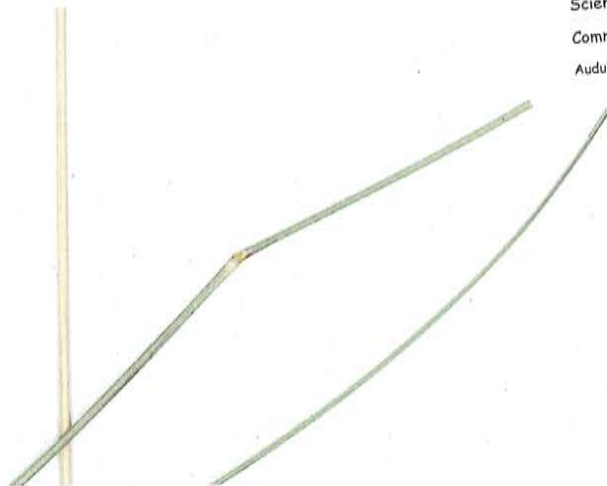
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Scientific name: *Eragrostis lehmanniana*

Common name: Lehmann's lovegrass

Audubon Research Ranch, Cochise Co. AZ 9-2008





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Scientific name: *Eragrostis superba*

Common name: Wilman lovegrass

Las Cienegas NCA, Pima County AZ 2008



Erioneuron pulchellum (H.B.K.)
Tateoka

(SR)

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Scientific name: *Erioneuron pulchellum*

Common name: Fluffgrass

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Scientific name: *Heteropogon contortus*

Common name: Tanglehead

AZ 83 Pima County AZ 2008



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Scientific name: *Hilaria belangeri*

Common name: Curly mesquite

Las Cienegas NCA, Pima County AZ 2008



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Scientific name: *Hilaria mutica*

Common name: Tobosa

Las Cienegas NCA, Pima County AZ 2008



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Scientific name: *Leptochloa dubia*
Common name: Green sprangletop
Las Cienegas NCA Pima County AZ 2008



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Scientific name: *Lycurus setosus*

Common name: Wolftail

Las Cienegas NCA, Pima County AZ 2008



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Scientific name: *Muhlenbergia arenicola*

Common name: Sand muhly

Las Cienegas NCA Pima County AZ 2008

ola
bley

012

Muhl
The Nature Conservancy

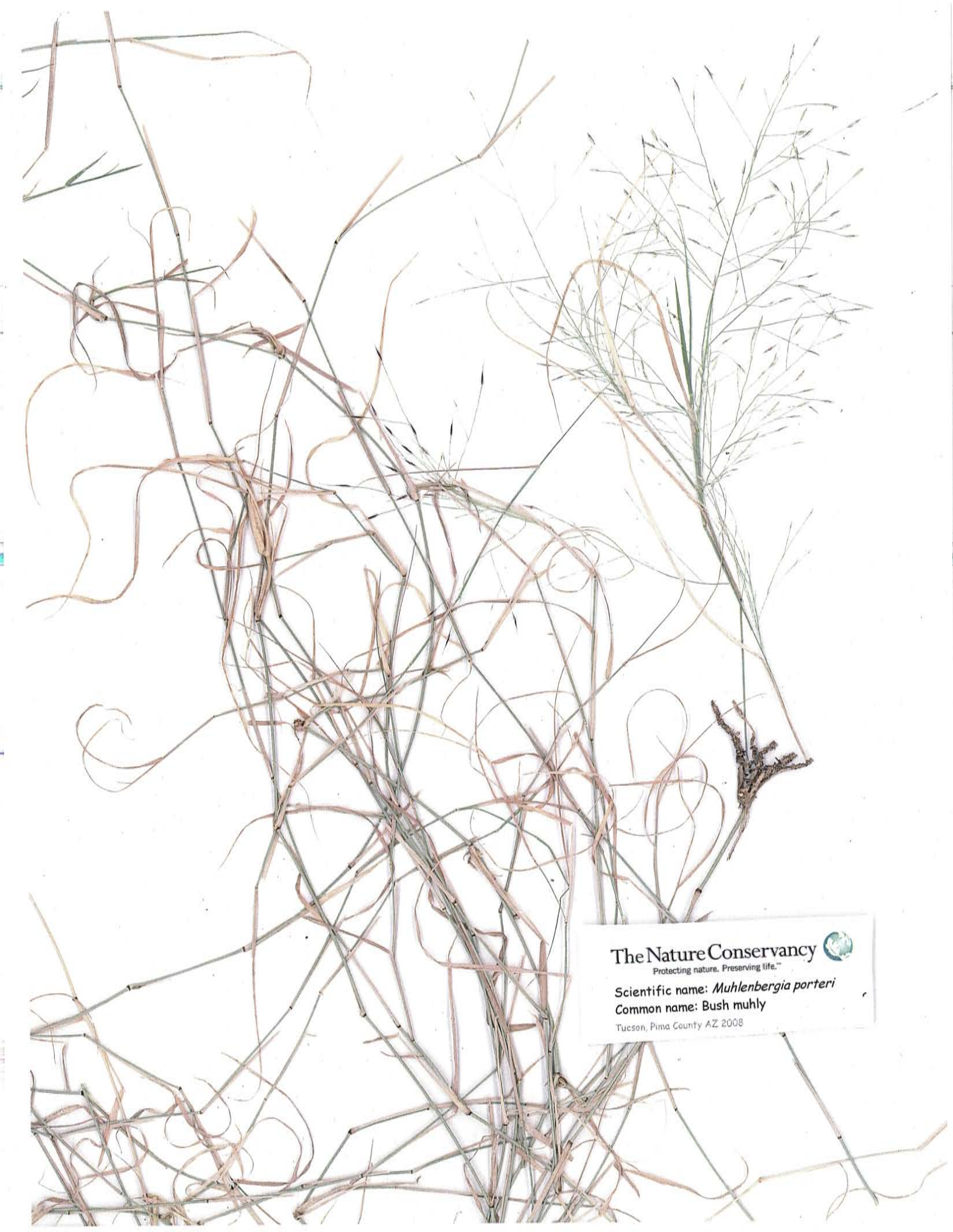


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Scientific name: *Muhlenbergia emersleyi*

Common name: Bull grass

Las Cienegas NCA Pima County AZ 2008



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Scientific name: *Muhlenbergia porteri*

Common name: Bush muhly

Tucson, Pima County AZ 2008



The image shows a dried plant specimen of Muhlenbergia rigens, commonly known as Deergrass. The specimen consists of several long, thin, light brown stems that are slightly curved. A single, long, narrow spike of the inflorescence is positioned vertically on the right side. The plant material is laid out on a plain white background. A small white label is attached to the bottom of the stems, providing identification and collection information.

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Scientific name: *Muhlenbergia rigens*

Common name: Deergrass

Las Cienegas NCA, Pima County AZ 2008

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Scientific name: *Muhlenbergia rigida*

Common name: purple muhly

Las Cienegas NCA Pima County AZ 2008

U.) Trinellus

(2)



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Scientific name: *Panicum antidotale*
Common name: Blue panic
Las Cienegas NCA Pima County AZ 2008



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Scientific name: *Panicum hallii*

Common name: Hall's panic

Las Cienegas NCA Pima County AZ 2008



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Scientific name: *Panicum obtusum*
(*Hopia obtusa*)

Common name: Vine mesquite
Las Cienegas NCA Pima Co. AZ 2008



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Scientific name: *Paspalum distichum*

Common name: Knotgrass

Las Cienegas NCA, Pima County AZ 2008

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Scientific name: *Schizachrium cirratum*

Common name: Texas bluestem

Las Cienegas NCA Pima County AZ 2008

m (Hackel)
ley

(SR)





Setaria
Leucopila

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Scientific name: *Setaria leucopila*

Common name: Streambed bristlegrass

Las Cienegas NCA Pima County AZ 2008



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Scientific name: *Sorghum halepense*

Common name: Johnsongrass

Las Cienegas NCA, Pima County AZ 2008

A herbarium specimen of the grass Sporobolus cryptandrus, commonly known as sand dropseed. The specimen consists of several long, slender, greenish-brown leaves and a few dried, yellowish seed heads. The plant material is arranged in a somewhat tangled manner, with some leaves showing a reddish-brown hue at the base. The entire specimen is mounted on a white background.

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Scientific name: *Sporobolus cryptandrus*

Common name: Sand dropseed

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Scientific name: *Sporobolus wrightii*

a.k.a *Sporobolus airoides* var. *wrightii*

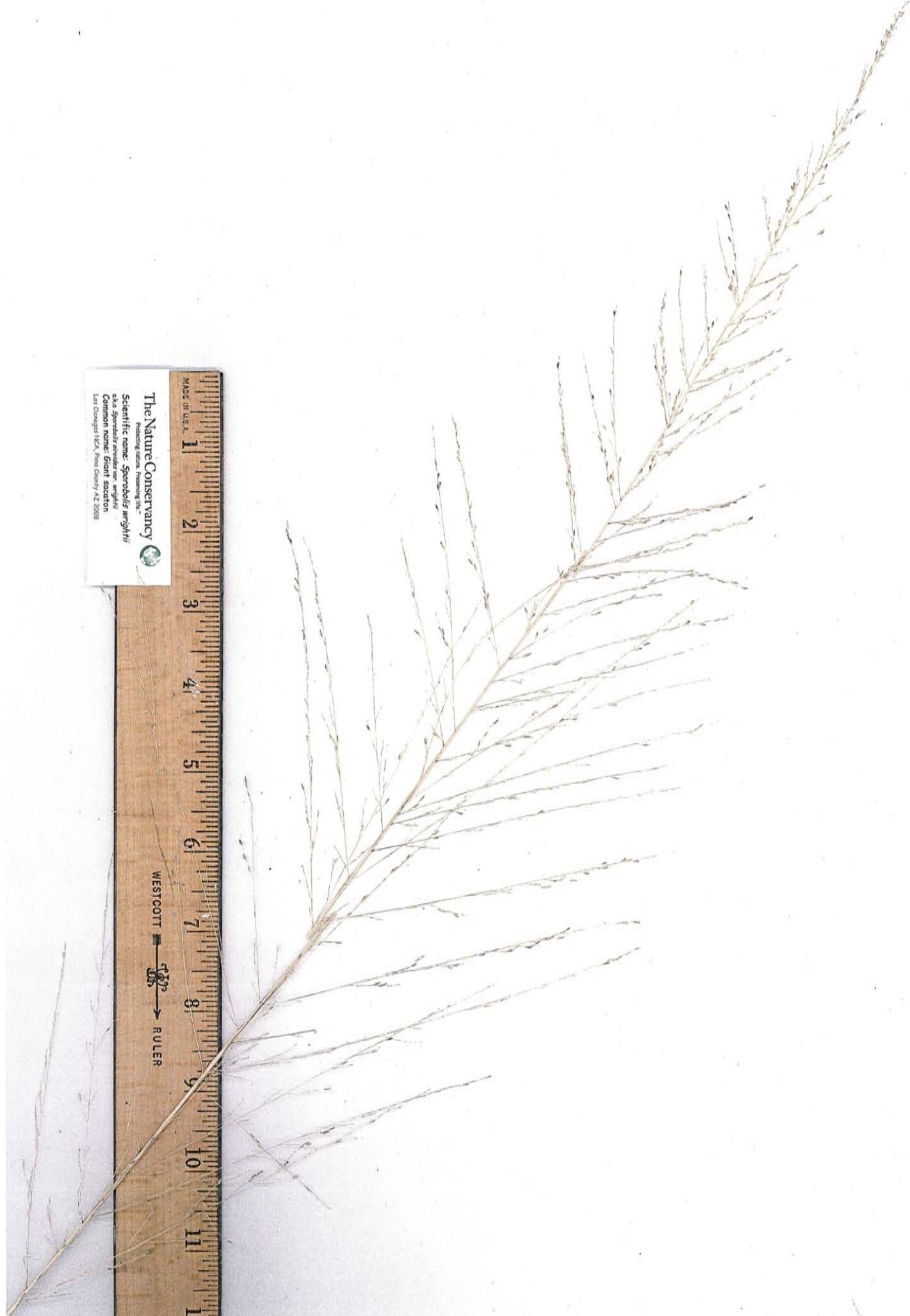
Common name: Giant sacaton

Las Cienegas NCA, Pima County AZ 2008

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Scientific name: *Sporobolus wrightii*
aka *Sporobolus arundinaceus* var. *wrightii*
Common name: Giant sacaton
Listed on the IUCN Red List as Least Concern (LC) in 2008



WESTCOTT
RULER





Trachypogon
montufarii
(spicatus)

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Scientific name: *Trachypogon montufarii*

Common name: Crinkleawn

Las Cienegas NCA Pima County AZ 2008

A dried botanical specimen of Tridens grandiflorus is mounted on a white background. The specimen consists of a central cluster of roots and a dense mass of long, thin, brownish-green leaves. Several upright stems rise from the base, each topped with a yellowish, spike-like inflorescence. To the left of the main specimen, a single, isolated stem with a similar inflorescence is also mounted. The handwritten label 'Tridens grandiflorus' is positioned to the left of the main plant cluster.

Tridens grandiflorus

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Scientific name: *Tridens grandiflorus*

Common name: Shortleaf tridens

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Scientific name: *Tridens muticus*

Common name: Slim tridens

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Scientific name: *Aristida adscensionis*
Common name: Sixweeks threecawn
Las Cienegas NCA Pima County AZ 2008

CONTACT

A pressed plant specimen of Bouteloua barbata (Sixweeks grama) is shown against a white background. The plant has a dense, fibrous root system at the base. Numerous long, thin, green leaves emerge from the base and spread outwards. Several upright stems rise from the foliage, each bearing a small, elongated, brownish seed head at the top. A white rectangular label is attached to the lower left of the plant.

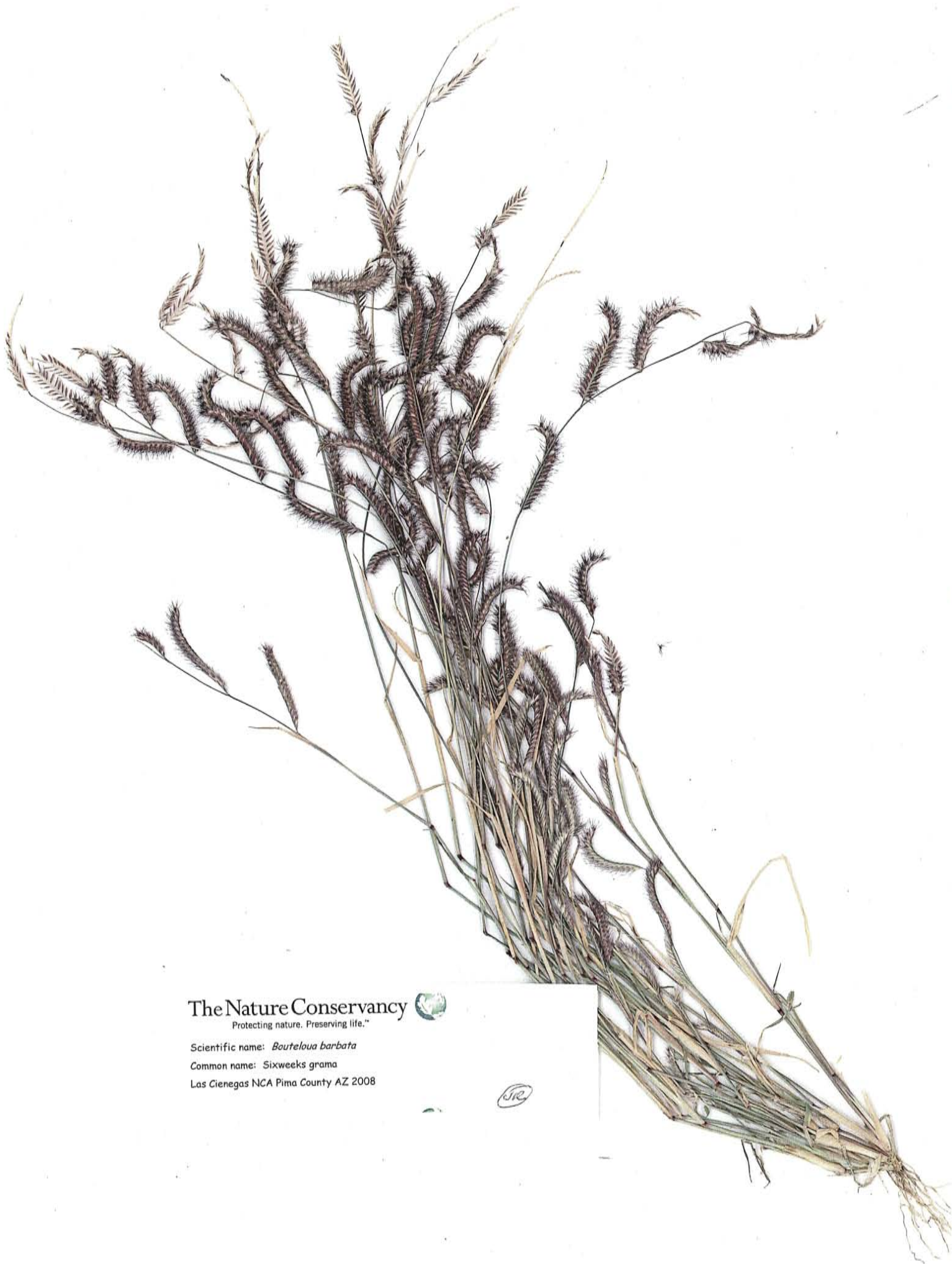
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Scientific name: *Bouteloua barbata*

Common name: Sixweeks grama

Las Cienegas NCA Pima County AZ 2008



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Scientific name: *Bouteloua barbata*

Common name: Sixweeks grama

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Scientific name: *Echinochloa crus-galli*
Common name: Barnyard grass

Los Cienegas NCA, Pima County AZ 2008



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Scientific name: *Eragrostis pectinacea*
var. *pectinacea*

Common name: Tufted lovegrass
Las Cienegas NCA Pima County AZ 2008

(Michx.)

ea

(R)

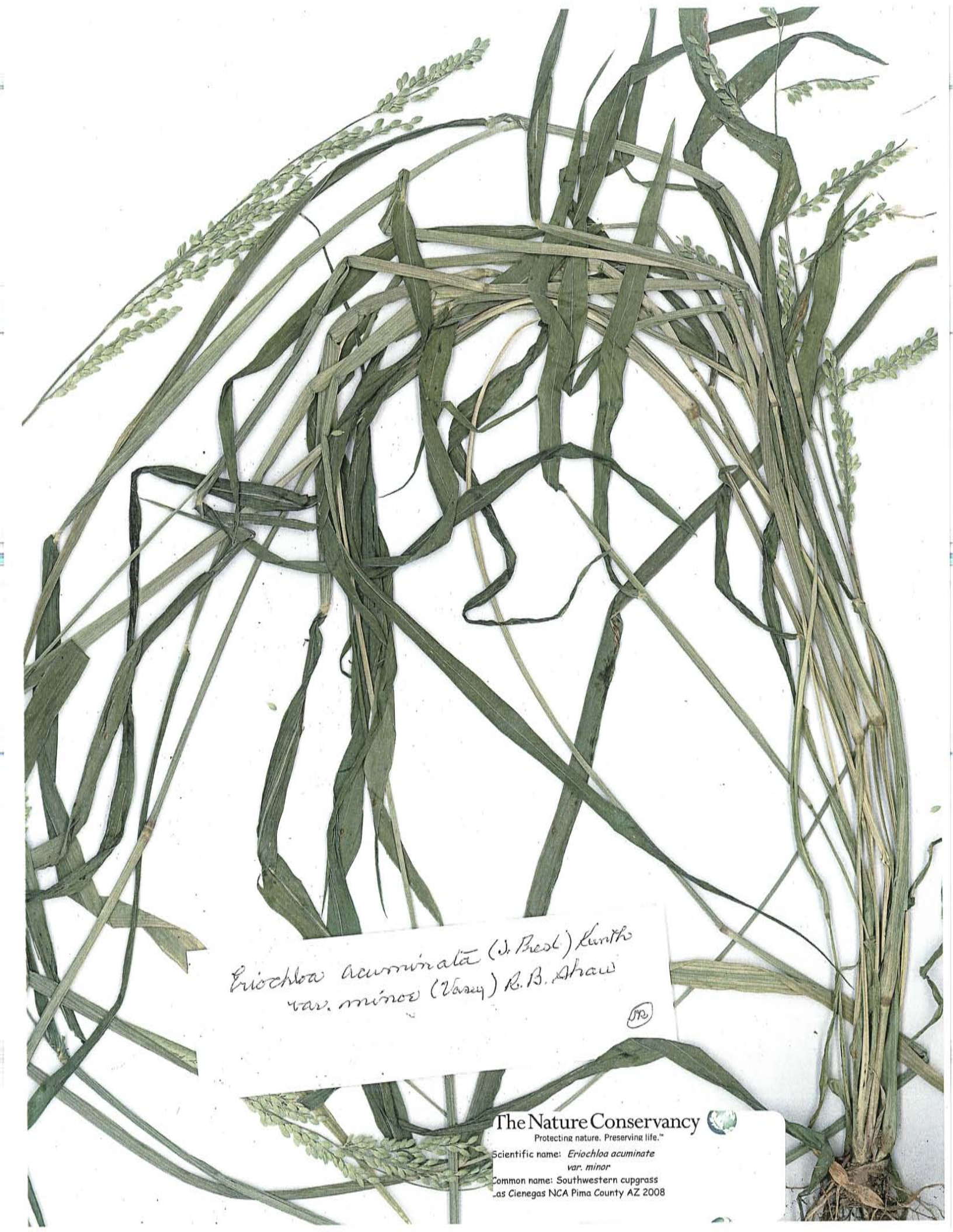
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Scientific name: *Eragrostis pectinacea*
var. *miserrima*

Common name: Tufted lovegrass
Las Cienegas NCA Pima County AZ 2008

(Eichx.) Nees
rs.)
Reeder





Eriochloa acuminata (J. Presl) Kunth
var. *minor* (Vasey) R. B. Shaw

(M)

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Scientific name: *Eriochloa acuminata*
var. *minor*

Common name: Southwestern cupgrass
Las Cienegas NCA Pima County AZ 2008



Setaria grisebachii E. Fourn.

Dr.

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Scientific name: *Setaria grisebachii*

Common name: Grisebach's bristlegrass

Las Cienegas NCA Pima County AZ 2008