

# TIPPC Plant Assessment Form

For use with “[Criteria for Categorizing Invasive Non-Native Plants that Threaten Wildlands](#)”  
by the California Invasive Plant Council and the Southwest Vegetation Management Association

Version February 2003, modified July 2009 for the Texas Invasive Plant & Pest Council –  
www.texasinvasives.org

**Table 1. Species and Evaluator Information**

<b>Species name</b> (Latin binomial):	Cynodon dactylon
<b>Synonyms:</b>	Capriola dactylon, Panicum dactylon
<b>Common names:</b>	Bermudagrass
<b>Evaluation date</b> (mm/dd/yy):	07/12/2011
<b>Evaluator #1 Name/Title:</b>	Travis Gallo/Ecologist
<b>Affiliation:</b>	The Lady Bird Johnson Wildflower Center
<b>Phone numbers:</b>	512-232-0116
<b>Email address:</b>	tgallo@wildflower.org
<b>Address:</b>	4801 La Crosse Ave., Austin, Texas 78704
<b>Evaluator #2 Name/Title:</b>	enter text here
<b>Affiliation:</b>	enter text here
<b>Phone numbers:</b>	enter text here
<b>Email address:</b>	enter text here
<b>Address:</b>	enter text here

Section below for list committee use—please leave blank

<b>List committee members:</b>	enter text here
<b>Committee review date:</b>	enter text here
<b>List date:</b>	enter text here
<b>Re-evaluation date(s):</b>	enter text here

<p><b>General comments on this assessment:</b> Originally assessed for the City of Austin Invasive Management Plan</p>
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**Table 2. Criteria, Section, and Overall Scores**

**Species:** enter text here

**Region:** enter text here

<a href="#">1.1</a>	Impact on abiotic ecosystem processes	<b>B</b>	<b>Other Pub. Mat'l</b>
<a href="#">1.2</a>	Impact on plant community	<b>A</b>	<b>Other Pub. Mat'l</b>
<a href="#">1.3</a>	Impact on higher trophic levels	<b>U</b>	<b>No Information</b>
<a href="#">1.4</a>	Impact on genetic integrity	<b>D</b>	<b>Other Pub. Mat'l</b>

**Impact**

*Enter four characters from Q1.1-1.4 below:*

**BAUD**

*Using matrix, determine score and enter below:*

**B**

<a href="#">2.1</a>	Role of anthropogenic and natural disturbance	<b>C</b>	<b>Other Pub. Mat'l</b>
<a href="#">2.2</a>	Local rate of spread with no management	<b>B</b>	<b>Other Pub. Mat'l</b>
<a href="#">2.3</a>	Recent trend in total area infested within state	<b>B</b>	<b>Observational</b>
<a href="#">2.4</a>	Innate reproductive potential <a href="#">Wksht A</a>	<b>A</b>	<b>Other Pub. Mat'l</b>
<a href="#">2.5</a>	Potential for human-caused dispersal	<b>A</b>	<b>Other Pub. Mat'l</b>
<a href="#">2.6</a>	Potential for natural long-distance dispersal	<b>C</b>	<b>Other Pub. Mat'l</b>
<a href="#">2.7</a>	Other regions invaded	<b>C</b>	<b>Other Pub. Mat'l</b>

**Invasiveness**

*Enter the sum total of all points for Q2.1-2.7 below:*

**13**

*Use matrix to determine score and enter below:*

**B**

**Plant Score**

*Using matrix, determine Overall Score and Alert Status from the three section scores and enter below:*

**Moderate**

**No Alert**

<a href="#">3.1</a>	Ecological amplitude/Range	<b>A</b>	<b>Other Pub. Mat'l</b>
<a href="#">3.2</a>	Distribution/Peak frequency <a href="#">Wksht C</a>	<b>A</b>	<b>Other Pub. Mat'l</b>

**Distribution**

*Using matrix, determine score and enter below:*

**A**

**Documentation**

*Average of all questions*

2.7

**Table 3. Documentation** (List all references at end of PAF. Short citations may be used in Table 3.)

<b>Impacts</b>	
<b>Question 1.1</b> Impact on abiotic ecosystem processes	B Other Pub. Mat'l <a href="#">back</a>
Identify ecosystem processes impacted:	
Holds soil well and is used as erosion control, but also competes with and displaces native plants, alters the soil ecology by de-oxygenating, alters geomorphological processes and hydrology, alters species composition and richness, and alters alpha and beta diversity.	
Sources of information: enter text here	
Marshall, R.M., S. Anderson, M. Batcher, P. Comer, S. Cornelius, R. Cox, A. Gondor, D. Gori, J. Humke, R. Paredes Aquilar, I.E. Parra, and S. Schwartz. 2000. An ecological analysis of conservation priorities in the Sonoran Desert Ecoregion. Prepared by The Nature Conservancy Arizona Chapter, Sonoran Institute, and Instituto del Medio Ambiente y el Desarrollo Sustentable del Estado de Sonora with support from the Department of Defense Legacy Program, Agency and Institutional partners. 146 pp.	
Guertin, P., and W.L. Halvorson. 2003. Status of Fifty Introduced Plants in Southern Arizona Parks. U.S. Geological Survey, Sonoran Desert Research Station, School of Natural Resources, University of Arizona, Tucson. Available online at: <a href="http://sdrsnet.srn.arizona.edu/index.php?page=datamenu&amp;lib=2&amp;sublib=13">http://sdrsnet.srn.arizona.edu/index.php?page=datamenu&amp;lib=2&amp;sublib=13</a> ; accessed May 2011.	
<b>Question 1.2</b> Impact on plant community composition, structure, and interactions	A Other Pub. Mat'l <a href="#">back</a>
Identify type of impact or alteration:	
Bermudagrass is an early successional species that can dominate once established. It greatly reduces native biodiversity by creating a monoculture once established. It can dominate stands by >75%. Has potential of being allelopathic.	
Sources of information: enter text here	
Guertin, P., and W.L. Halvorson. 2003. Status of Fifty Introduced Plants in Southern Arizona Parks. U.S. Geological Survey, Sonoran Desert Research Station, School of Natural Resources, University of Arizona, Tucson. Available online at: <a href="http://sdrsnet.srn.arizona.edu/index.php?page=datamenu&amp;lib=2&amp;sublib=13">http://sdrsnet.srn.arizona.edu/index.php?page=datamenu&amp;lib=2&amp;sublib=13</a> ; accessed May 2011.	
Horowitz, M. 1973. Spatial growth of <i>Sorghum halepense</i> . Weed Research 13:200-208.	
Personal Observation: Gallo	
<b>Question 1.3</b> Impact on higher trophic levels	U No Information <a href="#">back</a>
Identify type of impact or alteration:	
Due to its highly competitive ability it is thought Bermudagrass would have an effect on high trophic levels, but the literature does not cover impacts on native higher trophic levels.	
Sources of information: enter text here	
<b>Question 1.4</b> Impact on genetic integrity	D Other Pub. Mat'l <a href="#">back</a>
Identify impacts: enter text here	
No known impact on genetic integrity.	
Sources of information: enter text here	
Waïtt, D. 2011. Native Plant Information Network. Accessed 12 July 2011: <a href="http://wildflower.org/plants/">http://wildflower.org/plants/</a>	

<b>Invasiveness</b>	
<b>Question 2.1</b> Role of anthropogenic and natural disturbance in establishment	C Other Pub. Mat'l <a href="#">back</a>
Describe role of disturbance: enter text here	
Bermuda grass is sensitive to shade and frost damage, and only invades disturbed land. Thus, although abundant throughout the world, the threat from the invasion of this plant is limited to warm, sunny, disturbed sites.	
Sources of information: enter text here	
Newman, D. BugWoodWiki: Cynodon dactylon. Accessed 12 July 2011: <a href="http://wiki.bugwood.org/Cynodon_dactylon">http://wiki.bugwood.org/Cynodon_dactylon</a>	
Holm, L. G., P. Donald, J. V. Pancho, and J. P. Herberger. 1977. The World's Worst Weeds: Distribution and Biology. The University Press of Hawaii, Honolulu, Hawaii. 609 pp.	
<b>Question 2.2</b> Local rate of spread with no management	B Other Pub. Mat'l <a href="#">back</a>
Describe rate of spread: no information	
In Arizona, spreads slowly once established.	
Sources of information: enter text here	
Arizona-Sonoma Desert Museum Programs and Research. 1996-2003. Biological survey of Ironwood Forest National Monument: exotic plants assessment. <a href="http://www.desertmuseum.org/programs/ifnm_exotic.html">http://www.desertmuseum.org/programs/ifnm_exotic.html</a> .	
<b>Question 2.3</b> Recent trend in total area infested within state	B Observational <a href="#">back</a>
Describe trend: no information	
Although not spreading quickly, as long as it can be introduced to new areas the infestation will continue to	
Sources of information: enter text here	
Observation: T. Gallo	
<b>Question 2.4</b> Innate reproductive potential	A Other Pub. Mat'l <a href="#">back</a>
Describe key reproductive characteristics:	
Refer to Worksheet A.	
Sources of information:	
Newman, D. BugWoodWiki: Cynodon dactylon. Accessed 12 July 2011: <a href="http://wiki.bugwood.org/Cynodon_dactylon">http://wiki.bugwood.org/Cynodon_dactylon</a>	
Holm, L. G., P. Donald, J. V. Pancho, and J. P. Herberger. 1977. The World's Worst Weeds: Distribution and Biology. The University Press of Hawaii, Honolulu, Hawaii. 609 pp.	
<b>Question 2.5</b> Potential for human-caused dispersal	A Other Pub. Mat'l <a href="#">back</a>
Identify dispersal mechanisms: enter text here	
Bermudagrass is the most commonly planted grass as turf grass. Is moved through contaminated hay and equipment. Usually spreads from site of introduction.	
Sources of information: enter text here	
Hudson, W. 2011. New exotic invasive fly found damaging bermudagrass forage crops in Georgia. University of Georgia College of Agriculture and Environmental Sciences. Accessed 12 July 2011: <a href="http://www.caes.uga.edu/Applications/ImpactStatements/index.cfm?referenceInterface=IMPACT_STATEMENT&amp;subInterface=detail_main&amp;PK_ID=3278">http://www.caes.uga.edu/Applications/ImpactStatements/index.cfm?referenceInterface=IMPACT_STATEMENT&amp;subInterface=detail_main&amp;PK_ID=3278</a> .	

Duble, R.L. Bermudagrass: The Sport Turf of the South. Texas Cooperative Extension. Accessed 12 July 2011: <a href="http://aggiehorticulture.tamu.edu/archives/parsons/turf/publications/bermuda.html">http://aggiehorticulture.tamu.edu/archives/parsons/turf/publications/bermuda.html</a> .	
<b>Question 2.6</b> Potential for natural long-distance dispersal	C Other Pub. Mat'l <a href="#">back</a>
Identify dispersal mechanisms: enter text here	
Seeds and rhizomes can spread by wind or water. Seeds can survive submerged for over 50 days.	
Sources of information: enter text here	
Newman, D. BugWoodWiki: Cynodon dactylon. Accessed 12 July 2011: <a href="http://wiki.bugwood.org/Cynodon_dactylon">http://wiki.bugwood.org/Cynodon_dactylon</a>	
<b>Question 2.7</b> Other regions invaded	C Other Pub. Mat'l <a href="#">back</a>
Identify other regions: enter text here	
Introduced in 1943, its found in most regions of Texas.	
Sources of information: enter text here	
Corriher, V.A. and L.A. Redmon. Bermudagrass varieties, hybrids, and blends for Texas, #SCS-2009-11. Extension Forage Specialists, Overton and College Station, TX. Accessed 12 July 2011: <a href="http://forages.tamu.edu/PDF/Bermudagrass%20Varieties.pdf">http://forages.tamu.edu/PDF/Bermudagrass%20Varieties.pdf</a>	
<b>Distribution</b>	
<b>Question 3.1</b> Ecological amplitude/Range	A Other Pub. Mat'l <a href="#">back</a>
Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: enter text here	
Did not fill out worksheet B. USDA PLANTS Database shoes more than 3 major ecotypes invaded.	
Sources of information: enter text here	
USDA PLANTS Database (Accessed 8 July 2011: <a href="http://plants.usda.gov/java/county?state_name=Texas&amp;statefips=48&amp;symbol=HYVE3">http://plants.usda.gov/java/county?state_name=Texas&amp;statefips=48&amp;symbol=HYVE3</a> )	
<b>Question 3.2</b> Distribution/Peak frequency	A Other Pub. Mat'l <a href="#">back</a>
Describe distribution: enter text here	
Did not fill out worksheet B. USDA PLANTS Database shoes more than 3 major ecotypes invaded.	
Sources of information: enter text here	
USDA PLANTS Database (Accessed 8 July 2011: <a href="http://plants.usda.gov/java/county?state_name=Texas&amp;statefips=48&amp;symbol=HYVE3">http://plants.usda.gov/java/county?state_name=Texas&amp;statefips=48&amp;symbol=HYVE3</a> )	

## References

List full citations for all references used in the PAF (short citations such as DiTomaso and Healy 2007 may be used in table above). **Websites** should include the name of the organization and the date accessed. **Personal communications** should include the affiliation of the person providing the observation. Enter each reference on a separate line; the table will expand as needed.

### Examples:

Mitich, L. W. 1995. Intriguing world of weeds: Tansy ragwort. *Weed Technology*. 9: 402-404.

HEAR. Date unknown. *Emex spinosa*. Hawaiian Ecosystems at Risk.  
[www.hear.org/pier/species/emex\\_spinosa.htm](http://www.hear.org/pier/species/emex_spinosa.htm). Accessed March 17, 2009

DiTomaso, J. M. Personal communication from Dr. Joe DiTomaso, Dept. of Plant Science, UC Davis. Email received 3/17/09.

enter text here

## Worksheet A

Reaches reproductive maturity in 2 years or less	1
Dense infestations produce >1,000 viable seed per square meter	2
Populations of this species produce seeds every year.	1
Seed production sustained over 3 or more months within a population annually	0
Seeds remain viable in soil for three or more years	0
Viable seed produced with <i>both</i> self-pollination and cross-pollination	1
Has quickly spreading vegetative structures (rhizomes, roots, etc.) that may root at nodes	1
Fragments easily and fragments can become established elsewhere	2
Resprouts readily when cut, grazed, or burned	1
	9 1
	A
<b>Note any related traits:</b> enter text here	

## Notes for Worksheet B - Texas Ecoregions

### Question 3.1

#### Ecological amplitude

Refer to the worksheet and select the one letter below that indicates the number of different ecological types that this species invades in your state.

- A. Widespread—the species invades at least three Level III ecoregions **or** at least 22 Level IV ecoregions.
- B. Moderate—the species invades two Level III ecoregions 8 Level IV ecoregions.
- C. Limited—the species invades only one Level III ecoregion **and** two to six Level IV ecoregions.
- D. Narrow—the species invades only one Level IV ecoregion.
- U. Unknown.

**Worksheet B - Texas Ecoregions (Griffen et al, 2004).**

\* A. means >50% of type occurrences are invaded; B means >20% to 50%;  
C. means >5% to 20%; D. means present but ≤5%; U. means unknown

Code	Level III	Level IV	Score
ER01	Arizona/New Mexico Mountains	Chihuahuan Desert Slopes	
		Montane Woodlands	
ER02	Chihuahuan Deserts	Chihuahuan Basins and Playas	
		Chihuahuan Desert Grasslands	
		Low Mountains and Bajadas	
		Chihuahuan Montane Woodlands	
		Stockton Plateau	
ER03	High Plains	Rolling Sand Plains	
		Canadian/Cimarron High Plains	
		Llano Estacado	
		Shinnery Sands	
		Arid Llano Estacado	
ER04	Southwestern Tablelands	Canadian/Cimarron Breaks	
		Flat Tablelands and Valleys	
		Caprock Canyons, Badlands, and Breaks	
		Semiarid Canadian Breaks	
ER05	Central Great Plains	Red Prairie	
		Broken Red Plains	
		Limestone Plains	
ER06	Cross Timbers	Eastern Crosstimbers	
		Western Crosstimbers	
		Grand Prairie	
		Limestone Cut Plain	
		Carbonate Cross Timbers	
ER07	Edwards Plateau	Edwards Plateau Woodland	
		Llano Uplift	
		Balcones Canyonlands	
		Semiarid Edwards Plateau	
ER08	Southern Texas Plains	Northern Nueces Alluvial Plains	
		Semiarid Edwards Bajadas	
		Texas-Tamaulipan Thornscrub	
		Rio Grande Floodplain and Terraces	
ER09	Texas Blackland Prairies	Northern Blackland Prairies	
		Southern Blackland/Fayette Prairie	
		Floodplains and Low Terraces	
ER10	East Central Texas Plains	Northern Post Oak Savanna	
		Southern Post Oak Savanna	
		San Antonio Prairie	
		Northern Prairie Outliers	
		Bastrop Lost Pines	
		Floodplains and Low Terraces	
ER11	Western Gulf Coastal Plain	Northern Humid Gulf Coastal Prairies	
		Southern Subhumid Gulf Coastal Prairies	
		Floodplains and Low Terraces	
		Coastal Sand Plain	
		Lower Rio Grande Valley	
		Lower Rio Grande Alluvial Floodplain	
		Texas-Louisiana Coastal Marshes	
		Mid-Coast Barrier Islands and Coastal Marshes	
Laguna Madre Barrier Islands and Coastal Marshes			
ER12	South Central Plains	Tertiary Uplands	
		Floodplains and Low Terraces	
		Pleistocene Fluvial Terraces	
		Southern Tertiary Uplands	
		Flatwoods	
		Red River Bottomland	



