

Mapping ventenata in the Blue Mountains 2017

We are mapping ventenata to support a research project that will study ventenata (*Ventenata dubia*) distribution and the species' impacts on fire behavior in the Blue Mountains of Southeast Washington and Northeast Oregon.

Project goal

Extensively map ventenata occurrence across the Blue Mountains, gathering point locations in a diverse range of vegetation types, elevations, and land uses.

Approach

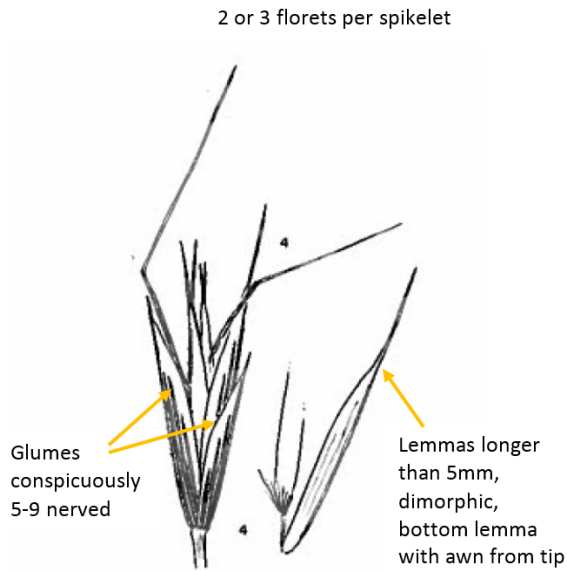
We hope to collaborate with weed control managers, biologists, ecologists, natural resource professionals, students, land managers and other volunteers to collect locations of ventenata and basic site information when they visit sites as part of their normal work routines. Locations and site information can be collected in the field with a mobile app (built in ESRI's Survey123) or with a basic GPS unit and paper forms. The process should not take more than 5 minutes per location.

Methods

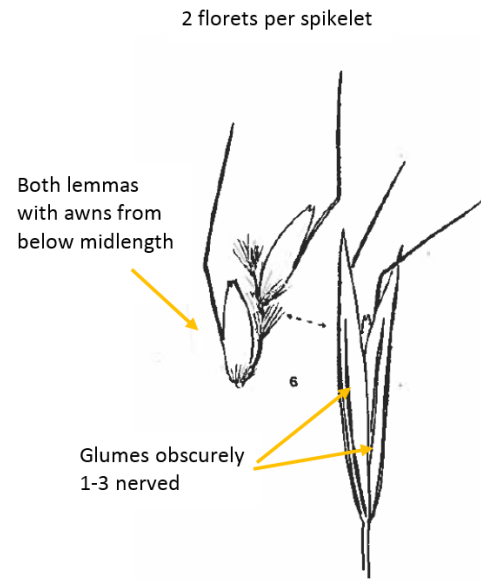
1. Recruit volunteers and distribute protocols
2. Train volunteers through webinars and one-on-one instruction
 - a. Properly identifying ventenata in the field
 - b. Collecting field data
 - i. Option 1: using our mobile app
 - ii. Option 2: using their own GPS unit and our forms
 - c. (Optional) Taking photographs
 - d. (Optional) Collecting vouchers
3. Collect locations from volunteers monthly (if using paper field forms)

Ventenata identification

Ventenata is a wispy annual grass typically 6-30 inches tall. It usually has just a few stems branching from the base that form from a shallow root system. The plant has reddish-black nodes along the stem, most visible in spring. Another distinguishing characteristic is its unusually long ligule at the base of each leaf axil. Below is an identification chart developed to help identify ventenata and compare its characteristics to the most common "look alike" plant, annual hairgrass (*Deschampsia danthonioides*).



Ventenata dubia



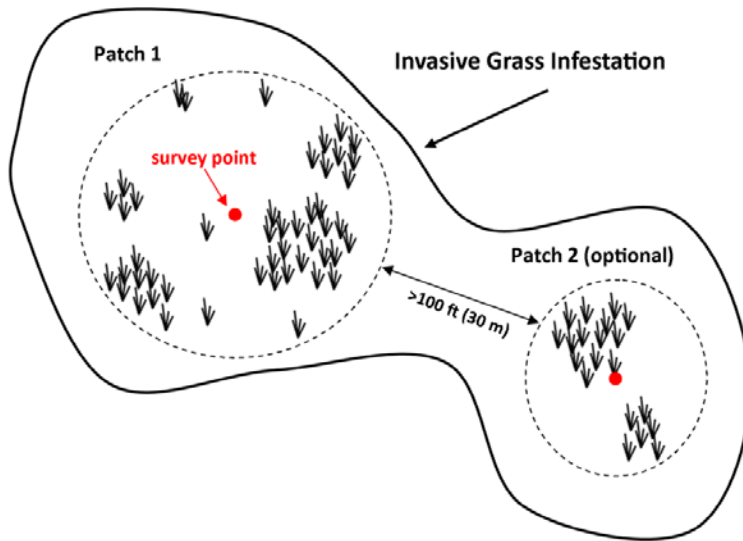
Deschampsia danthonioides

	<i>Ventenata dubia</i>	<i>Deschampsia danthonioides</i>
Glume veins	(3)5-9, conspicuous	1-3, inconspicuous
Florets	2-3 per spikelet	2 per spikelet
Lemmas	5-10 mm	1.5-3 mm
Awns	top lemma(s) w/ awn arising from below midlength, bottom lemma with awn arising from tip	both lemmas w/ awns arising from below midlength
Ligules	1-8 mm long acute to obtuse, usually lacerate	(0.5)2-3(4.7) mm long acute to acuminate, entire
Nodes	purple-black	greenish to brownish, not strongly contrasting w/ culms

Source: Carex Working Group 2016. Draft key to grasses of Oregon and Washington.

Mapping protocol

Each survey point in the mapping project represents an invasive grass infestation or observation. Infestations may include several patches, although all patches do not have to be mapped. An invasive grass patch is an area of land containing at least one invasive grass individual. The patch is defined by drawing an imaginary line around the general perimeter of the invasive species, including areas of uninfested land if the distribution is extremely patchy. Separate patches are defined when a patch overlaps into a new vegetation type or patches are >30 m (100 ft) apart. Patch size, spatial pattern, invasive grass cover and understory vegetation cover are attributes that will help describe the patch. Each invasive grass patch is mapped as a point; a single patch can represent an infestation for that area but the attributes that are collected only describe that patch. There is no expectation that all patches will be mapped. When possible, collect data at the center of the patch.



Mapping attributes

Volunteers are asked to collect the following information for every new ventenata (or other invasive annual grass) patch:

Observer: Full name

Date: MM/DD/YYYY

Observation location: "Center", "Edge" or "Other"

Where are you standing relative to the patch? Please remember if multiple patches are being mapped, create a new survey point for each patch that overlaps into a new vegetation type or is more than 100 ft or 30 m away from this patch.

Mapping method: "Recreational grade GPS (e.g. Garmin)", "Professional grade GPS (e.g. Trimble)", "Tablet or smartphone internal GPS", "Estimate from map" or "Other"

How will you record your location?

Location: <text>

For example: "45.3246, -118.0767" for geographic (latitude, longitude)
or "377037.91 E, 5013685.35 N" for UTM (Easting, Northing)

Projection/Coordinate System: "Geographic; WGS84 (lat/long)", "UTM 10N; NAD83 (easting/northing)", "UTM 11N; NAD83 (easting/northing)", or "Other"

Target species: Mapped annual grass species name (see below)

Common name	Latin name
Ventenata	<i>Ventenata dubia</i>
Cheatgrass	<i>Bromus tectorum</i>
Medusahead	<i>Taeniatherum caput-medusae</i>
Other annual invasive grass	NA
No annual invasive grass	NA

Other annual grass species present: Check all that are present in the patch (see list above)

Species ID Quality: “Certain”, “Fairly sure”, or “Not sure”

How confident are you in identifying the species?

Spatial Pattern: “Patchy”, “Homogenous”, or “Linear”

Description of the infestation pattern.

Patch Size: Approximate size of patch (see below)

Approximate outside dimension of patch, including small areas (not more than 30 m or 100 ft apart) with little or no invasive grass.

Size
None
< 0.1 acre
0.1-1 acre
1-3 acres
> 3 acres

Approximate dimensions for reference:

Acre	Square (ft)	Square (m)	Circle Radius (ft)	Circle Radius (m)
0.1	65 x 65	20 x 20	35	10
1.0	210 x 210	65 x 65	120	35
3.0	360 x 360	110 x 110	200	60

Target species Cover: Cover Class (see below)

Estimated foliar cover of the target species (not all annual grasses combined) for the entire patch. Consider this year's growth only.

Cover
None
< 5%
5-25%
25-50%
50-75%
> 75%

Understory Cover: Cover Class (see below)

Estimated foliar cover for all understory vegetation (< 1.5 m tall) for the entire patch. Consider this year's growth only.

Cover
None
< 5%
5-25%
25-50%
50-75%
> 75%

Vegetation Type: Vegetation Class (see below)

General vegetation type that best describes the site and surrounding area.

Vegetation Type	Description
Roadside	Disturbed area alongside a road
Other disturbed area	Quarry, landing, skid trails, etc.
Grassland	< 10% shrub or tree cover, dominated by grass and forbs
Shrubland	> 10% shrub and < 10% tree cover
Open forest/woodland	10 - 40% tree cover
Forest/woodland	> 40% tree cover
Non-vegetated	Undisturbed area with < 10% vegetation
Other	Other

Disturbance Intensity: “None”, “A little”, “A lot”

Overall intensity of recent disturbance activities. In general, “a lot” is more than 50% and “a little” is less than 50% of the area is disturbed.

Site Description: <text> (Optional)

Description of site, including references to other identifying information (plot numbers, project names, etc.).

Plant Collection: “Yes” or “No” (Optional)

Indicate whether a plant collection was taken for species verification purposes. Provide reference number(s) if collection was taken.

Site Photo: “Yes” or “No” (Optional)

Indicate whether a site photo was taken to help document the general site conditions. Provide photo number(s) if picture(s) were taken.

Plant collections (Optional)

If a plant collection is taken to verify species identification be sure to collect the entire plant including the roots when possible and the characters needed to identify the species (i.e., mature grass flowers).

Add the following information to be included with the specimen, the date of collection, location of collection (be as specific as possible to help enable the specimen to be linked to the survey point), and the full name of the person who made the collection. Press the collection between newspaper in a plant press or weighted down with books and allow to dry.

Please drop off or mail plant collections to Bridgett Naylor (address and contact information below).

Site photos (Optional)

Photos can help confirm species identification or provide a quick visual for the vegetation type. For close up photographs of the grass species include the inflorescence, and details of flower/spikelet characters if possible. Whole plant and/or broader view images are also helpful especially in association with surrounding habitat.

Before Going to the Field

Please determine which mapping method you want to use before going to the field: 1) paper field forms or 2) the mobile data collection app.

OPTION 1 – Paper field forms and a GPS unit

Print copies of the field form to take with you into the field. Please drop off or mail completed forms to Bridgett Naylor (address and contact information below) once a month, if possible.

OPTION 2 – Mobile data collection app (Survey123)

This option takes more time to set up but may save time in the field later. You can download this app to most smartphones, tablets, or rugged computers and they do not have to be Forest Service issued devices.

Step 1: Setup an ArcGIS Online Account (if you don't already have one)

If you don't already have a Forest Service ArcGIS Online Account (AGOL), please email Bridgett Naylor (bnaylor@fs.fed.us) the following information:

- Name:
- Email:
- Phone number:
- Agency/Affiliation:

If you are a Forest Service employee, you can also request an account here:

http://fswebgstc.gsc.wo.fs.fed.us/services/applications_tools/AGOL/request_access.php

Please add in the "Description" that you want to be added to the "R6 Mobile Blue Mountains Invasive Plants" group when your account is created.

Once your request has been processed (typically 1-3 days), you'll receive an invite email from "ArcGIS Notifications" with a link to set up your account within 14 days. Please follow the instructions of the email to finish setting up your account.

Step 2: Email account name to mapping team

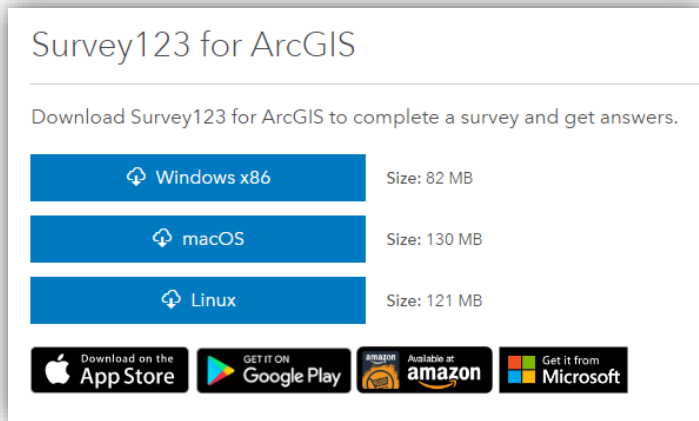
Once you have an account, please email Bridgett Naylor (bnaylor@fs.fed.us) your account name so she can verify you have been added to the "R6 Mobile Blue Mountains Invasive Plants" group. The survey will not be available until you have been added to this group.

Step 3: Install Survey123 on your device(s)

The mobile mapping app is developed in an ESRI product called Survey123.

Download the app to your device(s) from this site:

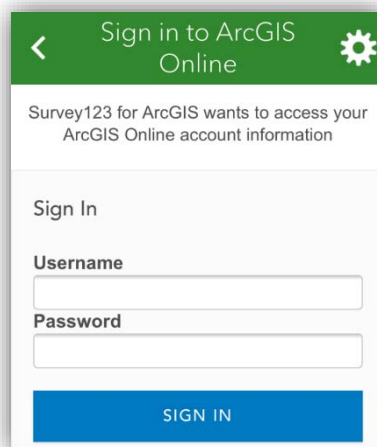
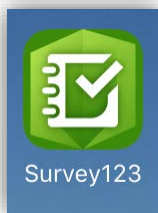
<http://doc.arcgis.com/en/survey123/download/>



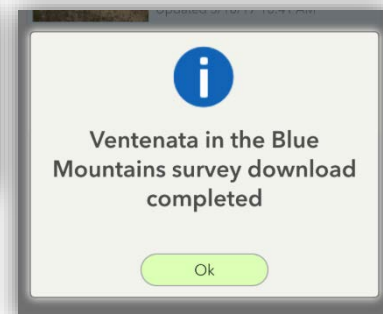
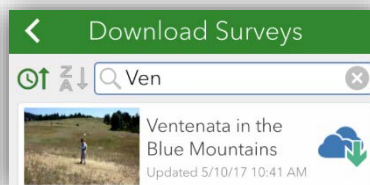
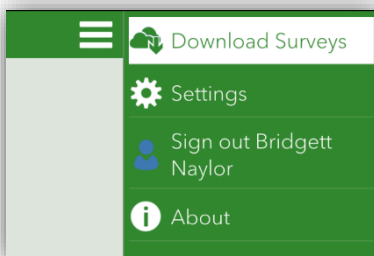
Depending on your device, you'll either be directed to the Apple App Store, Google Play, or Microsoft. You will be required to sign into your AGOL account to install and enable the app.

Using the mobile data collection app

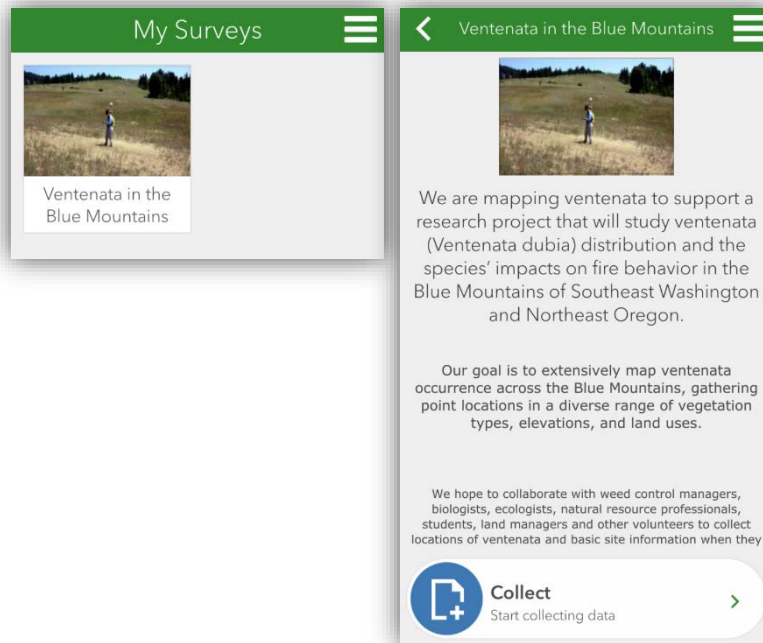
1. Click on the Survey123 icon and sign in to ArcGIS Online when prompted (or after selecting "Sign in" under the menu bar):



2. Download the "Ventenata in the Blue Mountains" survey by typing in the name in the "Download Surveys" window:



3. Click on the “Ventenata in the Blue Mountains” image, then click on “Collect” to open a new survey:



4. Start filling out survey for a new patch:

Ventenata Mapping

Observer *
Full name, please.

Date *
May 10, 2017

Where are you standing relative to the patch? *
Please remember if multiple patches are being mapped, create a new survey point for each patch that overlaps into a new vegetation type or is more than 100 ft or 30 m away from this patch.

☐ Center
☐ Edge
☐ Other

When you select “Recreational grade GPS” or “Professional grade GPS”, you’ll be given a field to type in your location as either a lat/long or easting/northing. You’ll also be able to record which projection or coordinate system your GPS is set to. Alternatively, when you select “Tablet or smartphone internal GPS”, “Estimate from map”, or “Other”, you’ll be able to access a map:

How will you record your location?

☒ Recreational grade GPS (e.g. Garmin)

☐ Professional grade GPS (e.g. Trimble)

☐ Tablet or smartphone internal GPS

☐ Estimate from map

☐ Other

Location

Latitude, Longitude (e.g. 45.3246, -118.0767)

Easting, Northing (e.g. 377037.91 E, 5013685.35 N)

Projection/Coordinate System *

☐ Geographic; WGS84 (lat/long)

☐ UTM 10N; NAD83 (easting/northing)

☐ UTM 11N; NAD83 (easting/northing)

☐ Other

How will you record your location?

☐ Recreational grade GPS (e.g. Garmin)

☐ Professional grade GPS (e.g. Trimble)

☒ Tablet or smartphone internal GPS

☐ Estimate from map

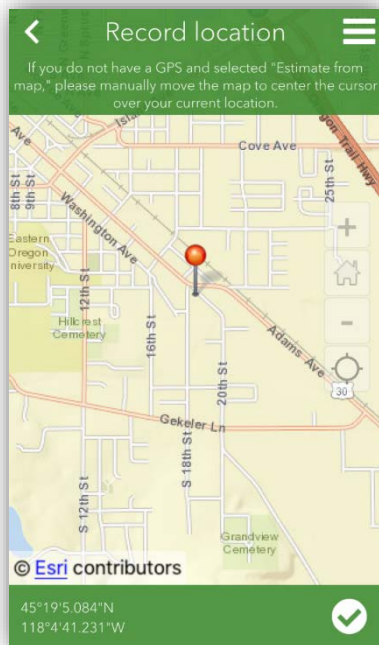
☐ Other

Record location *

If you do not have a GPS and selected "Estimate from map," please manually move the map to center the cursor over your current location.

45°19'N 118°5'W ± 65 m

Click on the map and either allow the device’s internal GPS to determine your location or move the map so your location is under the pin in the center of the screen. Once you are satisfied with your location, select the check mark in the lower right corner of the screen:



Continue to fill out the survey:

Target species *
Mapped annual grass species name.
Ventenata (Ventenata dubia) ▼

Other annual grass species present:
Check all that are present in the patch.

☐ Ventenata (Ventenata dubia)
☐ Cheatgrass (Bromus tectorum)
☐ Medusahead (Taeniatherum caput-medusae)
☐ No annual invasive grass
☐ Other

How confident are you in identifying the species? *

☐ Certain
☐ Fairly sure
☐ Not sure

Spatial Pattern *
Description of the infestation pattern.

☐ Patchy
☐ Homogenous
☐ Linear

Patch Size *
Approximate outside dimension of patch, including small patches (not more than 30 m or 100 ft apart) with little or no invasive grass. 0.1 ac = 35 ft or 10 m radius circle 1.0 ac = 120 ft or 35 m radius circle 3.0 ac = 200 ft or 60 m radius circle

☐ None
☐ < 0.1 Acre
☐ 0.1 - 1 Acre
☐ 1 - 3 Acres
☐ > 3 Acres

Target species cover *
Estimated foliar cover of the target species (not all annual grasses combined) for the entire patch. Consider this year's growth only.

☐ None
☐ < 5%
☐ 5 - 25%
☐ 25 - 50%
☐ 50 - 75%
☐ > 75%

Understory cover *
Estimated foliar cover for all understory vegetation (

☐ None
☐ < 5%
☐ 5 - 25%
☐ 25 - 50%
☐ 50 - 75%
☐ > 75%

Vegetation type *
General vegetation type that best describes the site and surrounding area.

☐ Roadside (disturbed area alongside a road)
☐ Other disturbed area (quarry, landing, skid trails, etc.)
☐ Grassland (< 10% shrub or tree cover, dominated by grass and forbs)
☐ Shrubland (> 10% shrub and < 10% tree cover)
☐ Open forest/woodland (10 - 40% tree cover)
☐ Forest/woodland (> 40% tree cover)
☐ Non-vegetated (Undisturbed area with < 10% vegetation)
☐ Other

Disturbance intensity *
Overall intensity of recent disturbance activities. In general, "a lot" is more than 50% and "a little" is less than 50% of the area is disturbed.

☐ None
☒ A little
☐ A lot

Site description (optional)
Description of site, including references to other identifying information (plot numbers, project names, etc.).

Plant collection?
Indicate whether a plant collection was taken for species verification purposes.

☒ Yes
☐ No

Include plant collection reference number(s) here:

By selecting "Yes, using this device's camera" for the site photo section, you can then take a new photo (blue camera icon) or upload a photo (yellow folder icon). Alternatively, if you select "Yes, using a stand-alone camera" you can type the photo number(s) in the text box:

Site photo?
Indicate whether a site photo was taken to help document the general site conditions.

☐ Yes, using this device's camera
☒ Yes, using a stand-alone camera
☐ No

Include photo number(s) for reference here:

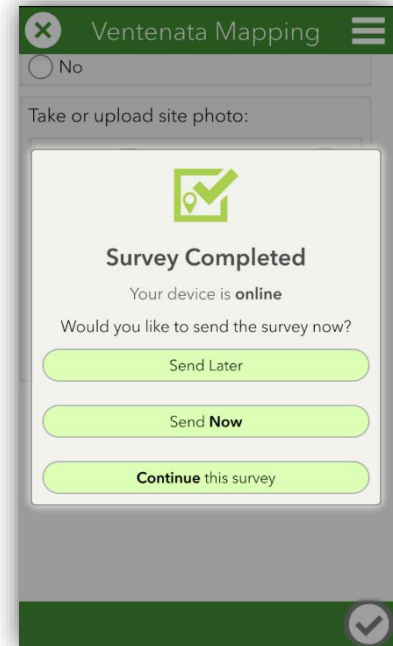
Site photo?
Indicate whether a site photo was taken to help document the general site conditions.

☒ Yes, using this device's camera
☐ Yes, using a stand-alone camera
☐ No

Take or upload site photo:

5. When finished, select the check mark in the lower right corner of the screen. You will have the option to send the survey later, now or continue the survey.



These protocols and supporting documents are available to download here:

<https://www.cloudvault.usda.gov/index.php/s/9rTvYNSU6u0to0n>

Useful references

- Plants Database Plant Guide (https://plants.usda.gov/plantguide/pdf/pg_vedu.pdf)
- Rocky Mountain Research Station's Fire Effects Information System (www.fs.fed.us/database/feis/plants/graminoid/vendub/all.html)
- Invasive Species Compendium (<http://www.cabi.org/isc/datasheet/117772>)

Contact us

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Next page includes a printable field form:

Observer: _____ Date: _____ Observation location (circle one): Center Edge Other: _____

Location X: _____ Projection Geographic; UTM 10N; UTM 11N; Other: _____
Y: _____ (circle one): WGS84 NAD83 NAD83

Mapping Method (circle one): Rec. grade GPS Prof. grade GPS Tablet/smartphone Other: _____
(e.g. Garmin) (e.g. Trimble) internal GPS

Target species (check one):
☐ Ventenata
☐ Cheatgrass
☐ Medusahead
☐ No annual invasive grass
☐ Other: _____

Other species present (check all):
☐ Ventenata
☐ Cheatgrass
☐ Medusahead
☐ No annual invasive grass
Other: _____

Species ID (circle one):
Certain
Fairly sure
Not sure
Spatial pattern (circle one):
Patchy
Homogenous
Linear

Patch size (check one):
☐ None
☐ < 0.1 acres
☐ 0.1-1 acre
☐ 1-3 acres
☐ > 3 acres

Area (ac)	Circle radius	
	(ft)	(m)
0.1	35	10
1.0	120	35
3.0	200	60

Target species cover (check one):
☐ None
☐ < 5%
☐ 5-25%
☐ 25-50%
☐ 50-75%
☐ > 75%

Understory veg. cover (check one):
☐ None
☐ < 5%
☐ 5-25%
☐ 25-50%
☐ 50-75%
☐ > 75%

Vegetation type (circle one):

Roadside
Other disturbed area
Grassland
Shrubland
Open forest/woodland
Forest/woodland
Non-vegetated
Other: _____

Disturbance intensity (circle one): None A little A lot

Site Description:

Plant collection: ☐ Yes ☐ No Collection #s: _____
Site photos: ☐ Yes ☐ No Photo #s: _____

Observer: _____ Date: _____ Observation location (circle one): Center Edge Other: _____

Location X: _____ Projection Geographic; UTM 10N; UTM 11N; Other: _____
Y: _____ (circle one): WGS84 NAD83 NAD83

Mapping Method (circle one): Rec. grade GPS Prof. grade GPS Tablet/smartphone Other: _____
(e.g. Garmin) (e.g. Trimble) internal GPS

Target species (check one):
☐ Ventenata
☐ Cheatgrass
☐ Medusahead
☐ No annual invasive grass
☐ Other: _____

Other species present (check all):
☐ Ventenata
☐ Cheatgrass
☐ Medusahead
☐ No annual invasive grass
Other: _____

Species ID (circle one):
Certain
Fairly sure
Not sure
Spatial pattern (circle one):
Patchy
Homogenous
Linear

Patch size (check one):
☐ None
☐ < 0.1 acres
☐ 0.1-1 acre
☐ 1-3 acres
☐ > 3 acres

Area (ac)	Circle radius	
	(ft)	(m)
0.1	35	10
1.0	120	35
3.0	200	60

Target species cover (check one):
☐ None
☐ < 5%
☐ 5-25%
☐ 25-50%
☐ 50-75%
☐ > 75%

Understory veg. cover (check one):
☐ None
☐ < 5%
☐ 5-25%
☐ 25-50%
☐ 50-75%
☐ > 75%

Vegetation type (circle one):

Roadside
Other disturbed area
Grassland
Shrubland
Open forest/woodland
Forest/woodland
Non-vegetated
Other: _____

Disturbance intensity (circle one): None A little A lot

Site Description:

Plant collection: ☐ Yes ☐ No Collection #s: _____
Site photos: ☐ Yes ☐ No Photo #s: _____