

2016 Greater Sage Grouse Invasive Species Management Exhibit 2A: Survey and Inventory Data Collection Standards

The Contractor shall adhere to these minimum GPS system and tolerance standards:

The following are the standard Forest Service minimum GPS reception tolerance parameters. These parameters affect the accuracy of GPS data and shall be adhered to by the Contractor.

The Contractor may use any **resource-grade**, Forest Service-approved portable data recorder and wireless GPS receiver or data recorder with an integrated GPS receiver and associated software that meets FS GPS standards and data requirements. *Final products must be delivered as ESRI feature classes or shapefiles.*

Protocol

NMEA 0183

GPS Datum: D_North_American_1983

Quality

Maximum PDOP: 6

3D Mode only

Antenna Height

Antenna height- 1 meter (3.3 feet)

GPS (as a rule, these are the tolerances, but SCNF recognizes that poorer quality data may occur)

PDOP Mask- 6.0

SNR Mask- 6.0

Elevation Mask- 15 degrees

Minimum Satellites- 4

Coordinates

System- Universal Transverse Mercator

Zone- 11 North

Datum- NAD 1983 (Continental United States)

Altitude Reference- MSL

Geoid- DMA 10X10 (Global)

Coordinate Units- Meters

Altitude Units- Meters

The Contractor shall adhere to the following data collection standards:

- Complete the electronic inventory format associated with each invasive plant infestation shapefile. Refer to Exhibit 2B - Invasive Plant Species Inventory Data Fields and Lists of Values for the specific data fields for each GIS feature (i.e. invasive plant infestation). Infestation attributes for each of the data fields defined as mandatory in Exhibit 2B must be collected for every infestation.
- The Contractor shall take GPS data points to delineate the specific areas inventoried and/or treated on each day. Tabular attributes for surveyed and treated areas shall include Date, Examiner, Invasive Plant Species for which the area was surveyed or treated and Total Acres for each surveyed area.
- The entire area identified to be surveyed and/or treated must be GPS'd to illustrate the entire area surveyed and the invasive plants for which it was surveyed. Within the surveyed area, all invasive plant species detected will be GPS'd as polygons in species-specific invasive plant infestations.
- Invasive plant infestations of 0.1 acre (37.24-ft radius) or less may be mapped with a single GPS point.
- Infestations greater than 0.1 acre shall be mapped as polygons that accurately define the perimeter of the infestation and patches of invasive plants within the infestation. *Polygons consisting only of four GPS points, one at each corner, are **not** acceptable.*
- Collect spatial data for each invasive plant infestation located during the inventory using a Forest Service-approved **resource grade** portable data recorder and wireless GPS receiver or data recorder with an integrated GPS receiver.
- The Contractor shall convert GPS features created with software other than ESRI to an ESRI feature class or shapefile format.

The Contractor shall adhere to the following invasive plant inventory standards:

- The Contractor shall follow a grid system that provides a thorough search pattern throughout the entirety of the specified inventory sites in each work area to locate, map and record all noxious invasive plant infestations.
- State or Forest Service-listed Control and Contain invasive plant species (Exhibit 1) of the same species in a scattered or scattered/patchy distribution and located within 100 feet of each other shall be considered part of the same infestation.
- *EARLY DETECTION/RAPID RESPONSE INVASIVE PLANT SPECIES AND SCNF WATCH LIST SPECIES (Exhibit 1) located within 50 feet of each other shall be considered part of the same infestation*
- Isolated individuals/patches located more than 100 feet from other plants of the same invasive plant species shall be considered and mapped as separate infestations.
- Where multiple infestations of different invasive plant species exist at the same site, the Contractor shall collect inventory data for each species as a separate infestation.

Example Inventory Procedure:

The ability to identify and detect invasive plants can vary enormously based on slope, terrain, plant phenology, surrounding plant community, other invasive plants present and season of survey. This section describes how the SCNF conducts survey and inventory work. We have found this procedure to work very well. If you have another system that works well, other procedures are acceptable as long as they produce work that conforms to at least minimum contract performance specifications.

Refer to Forest Service-provided maps and shapefiles to locate survey, inventory and treatment areas. Once at the site, determine appropriate gridding area for the day. Invasive plant species occur primarily in upland cover types on west and south-facing slopes. Most upland plant communities are comprised of bunchgrass habitat types with a variety of forbs and scattered sagebrush-steppe communities, generally on moderate slopes with sufficient soil depth. Conifer cover at inventory sites is generally sparse. The Contractor may avoid vertical rock outcrops and cliffs that cannot be safely traversed and heavily timbered areas with more than 50% canopy closure (note that these areas may already be delineated as places to avoid on inventory site maps provided by the COR).

Climb uphill to top of survey/inventory area and spread out the crew into a grid formation. The distance between crew members in this grid formation is based on a number of factors, including ability to identify plants, phenology of plants, habitat type, and terrain. For example, if spotted knapweed is in the rosette stage and identifiable no more than 10 feet away, two crewmembers should not be more than 20 feet apart.

Follow the contours of the hillside for the extent of the inventory area. Each person should remain at the same elevation for one entire pass. Once everyone has completed their pass, the crew will drop down lower in elevation. If the lowest person on the previous grid was at an elevation of 5000 ft., the highest person on the next pass would be at an elevation on 4980 ft. (assuming that the grid distance is 20 ft.).

Continue this gridding pattern for the entire extent of the survey/inventory polygon. Upon locating target invasive plants, collect spatial data (including perimeter) of each invasive plant infestation located during the inventory using a *resource grade*, Forest Service-approved portable data recorder and wireless GPS receiver or data recorder with an integrated GPS receiver. Collect required attribute data for each invasive plant infestation (required attribute data listed in Exhibit 2B). For small infestations (<0.1 acres) a single point will do. For anything larger than 0.1 acre, collect points around the perimeter of the infestation. If multiple infestations of different invasive plant species exist at the same site, the Contractor shall gather spatial and attribute data for each species as a separate infestation.

The Contractor shall take GPS points during the day's work delineating the area(s) gridded for survey/inventory that day. The Contractor shall create an ESRI shapefile depicting the specific areas surveyed and inventoried to submit to the COR as a deliverable product per contract performance specifications. Tabular attributes shall include Date, Examiner, Invasive Plant Species being inventoried and Total Acres Surveyed and Inventoried for each polygon.