

Yampa River Leafy Spurge Project

BIOLOGICAL CONTROL MONITORING DATA FIELDS, UPDATED SEPT. 2026

The Yampa River Leafy Spurge Project (YRLSP) uses Agterra's MapItFast (MIF) mapping application, running on Samsung Galaxy tablets, for its field data collection. MIF data is uploaded to the Agterra server after each field session, where it resides until the end of each field season. After the field season ends, online monitoring data is exported from the Agterra site in shapefile format, and then imported to the YRLSP's offline ArcGIS geodatabase as feature datasets. Datasets to be made available for public download are subsequently exported back out of the geodatabase as independent shapefile or KMZ format files.

Each step along this path may involve the automatic modification (typically a truncation) of what can already be some pretty obscure data field names. The following document lists the field names as they appear in the publicly downloadable version of the YRLSP's Biological Control Monitoring dataset. Where appropriate, it also provides some description of the data stored in each field.

For further information on leafy spurge biological control in the Yampa River Basin, see <https://www.yampariverleafyspurgeproject.com/biological-control>. For specific information regarding the YRLSP Biological Control Monitoring protocol, see the instructions and data sheet documents available in the YRLSP Documents list at <https://www.yampariverleafyspurgeproject.com/resources>.

FID

“Field Identifier.” The unique ArcMap identifier for the dataset record.

Shape

The ArcMap geometry.

datesort

This field displays the date on which the field data collection was made, in Year-Month-Day format (useful for sorting records chronologically).

latitude

This value has been generated from the current spatial record as it is stored in the YRLSP geodatabase.

longitude

This value has been generated from the current spatial record as it is stored in the YRLSP geodatabase.

elevation

The elevation value is generated in feet when the monitoring point is recorded.

reporter

The name of the person(s) making the field data collection.

affiliat

“Affiliation.” The group or agency with which the reporter(s) are affiliated.

Reporter2

The name(s) and affiliations of any additional person(s) making the field data collection.

newsite

“Is this a new site?” During field data collection on the tablet, entering a “yes” value prompts the reporter to enter additional environmental data (the **geomorph**, **aspect**, and **vegetatn** fields). Because these data typically will not change year-to-year, a “no” value automatically skips these fields on the tablet’s field data collection form.

Mon_Type

“Monitoring Type.” The YRLSP now conducts several versions of monitoring. The original Full Sweep Protocol monitoring is still valuable when recording beetle activity and environmental data for a new monitoring site, but has proven too time-consuming for tracking beetle activities over large areas and on frequent occasions throughout a field season. Monitoring now fits into the following categories:

Full Sweep Protocol The original protocol, as described in the YRLSP Biological Monitoring Protocol Instructions, available at in the YRLSP Documents section at <https://www.yampariverleafyspurgeproject.com/documents>

Photo Protocol The photo protocol eliminates the plot sweeps, but still collects environmental data and the four directional photographs, as described in the Full Sweep Protocol instructions.

Release Only When large numbers of biocontrol insects need to be quickly released over large areas, the vicinity of each release point is first sampled by random sweeping with a net. Any pre-existing biocontrol insects are recorded, along with the presence or absence of ants (the presence of large numbers of ants will discount the location as a release site).

Observation Multiple sets of five or ten sweeps, distributed within a particular area of infestation, can quickly determine the presence or absence, and level of activity, of biological control insects. The use of this pared-down monitoring technique on a regular frequency throughout the field season is proving invaluable for understanding the length of the biocontrol season and the various environmental factors that may hamper or facilitate the detection of existing populations. Observations record the time, weather, numbers and species of biocontrol, and other relevant conditions at the time of observation.

sitename

“YRLSP Monitoring Site Name.” YRLSP monitoring sites are discrete areas of relatively homogenous habitat, in which one or more documented biological control insect releases have been made. YRLSP monitoring site names combine a nonspecific name for the general area (typically the current property landowner or managing agency unit name) with the unique ReleaseID number for the *first biological control release* recorded at that site. Specific Biological Control *Releases* are always identified by their unique ReleaseID. However, while subsequent releases at the same release site are always

assigned new ReleaseID numbers, they are considered to have been released at the original site, which retains the original ReleaseID number in its name.

In a few cases involving legacy (pre-2019) biological control release locations, the YRLSP Monitoring Site Name can include two legacy Release ID numbers.

ReleaseID

If a biological control release was made when the site was visited, it was given a new, unique ReleaseID. If the new release was not the first made at the site, this number will be different from the number in the Site Name.

geomorph

“Geomorphic Description.” The field data collection tablet form provides a pick list of potential descriptions for the geomorphic status of the monitoring site (other geomorphic descriptions were sometimes added manually during field data entry in 2019):

- Active channel island
- Active channel bar
- River bank (edge of active channel)
- Seasonally inundated floodplain
- Irrigated agricultural field
- Irrigated ditch bank
- Upland

aspect

The aspect of the area within the monitoring plot and its general vicinity. Aspect is defined as the predominant downhill direction.

vegetatn

“Vegetation Type.” The dominant vegetation of the monitoring plot and its vicinity. Multiple types can be entered in this field. The field data collection tablet form provides a pick list of potential vegetation types (other vegetation types were sometimes added manually during monitoring field data entry in 2019):

- Sparsely vegetated
- Riparian herbaceous
- Riparian forest
- Agricultural crop (includes grass hay)
- Upland species

spurcov

“Leafy Spurge Canopy Cover.” The percentage of the area within the monitoring plot that is occupied by the leafy spurge canopy. The field data collection tablet form provides a pick list:

- Absent
- Trace (less than 1%)
- Low (1 to 5%)
- Moderate (5.1 to 25%)
- High (25 to 100%)

weather

The field data collection tablet form provides a pick list:

- Clear
- Partly cloudy
- Overcast
- Rain
- Other

wind

The field data collection tablet form provides a pick list:

- Calm
- Light
- Moderate
- Strong

temp_f

“Temperature in degrees Fahrenheit.” Measured by thermometer during data collection.

init_spp

“Initial Sample Species.” The YRLSP Full Sweep monitoring protocol begins by sampling the presence of leafy spurge biological control insects in the general area of (but not in) the monitoring plot, by performing 10 random sweeps with a 15-inch insect net on leafy spurge patches. The YRLSP monitoring protocol only differentiates insects in the *Aphthona* genus by color. (See the “YRLSP Biological Control Species ID Guide” available in the YRLSP Documents list at <https://www.yampariverleafyspurgeproject.com/resources>). The field data collection tablet form provides a pick list for the initial sample results:

- None
- Aphthona* – black (includes all black species of leafy spurge flea beetles)
- Aphthona* – brown (includes all brown species of leafy spurge flea beetles)
- Oberea* (the leafy spurge longhorn stem-boring beetle, *Oberea erythrocephala*)

sweep_spp

“Sweep Plot Species.” The YRLSP Full Sweep monitoring protocol delineates five sweep-sampling points along each of four lines radiating from the center of the plot in the cardinal N, E, S and W directions, for a total of 20 sampling points in each plot. Each sampling point is then subject to four sweeps with a 15-inch insect net, making a total of 80 sweeps per monitoring plot. The Sweep Plot Species field records each of the biocontrol insect types observed during this operation. The YRLSP monitoring protocol only differentiates insects in the *Aphthona* genus by color. (See the “YRLSP Biological Control Species ID Guide” available in the YRLSP Documents list at <https://www.yampariverleafyspurgeproject.com/resources>). The field data collection tablet form provides a pick list for the monitoring sweep-sampling results:

- None
- Aphthona* – black (includes all black species of leafy spurge flea beetles)

Aphthona – brown (includes all brown species of leafy spurge flea beetles)
Oberea (the leafy spurge longhorn stem-boring beetle, *Oberea erythrocephala*)

swp_cnt

“Sweep Plot Count.” This field records the total number of individual biological control insects collected during the 80 sweeps prescribed by the monitoring plot protocol (see the description in **sweep_spp**, above). This number lumps together the totals for each of the three types of biocontrol species listed in the pick list for the **sweep_spp** field.

P_A

“Presence/Absence.” This field is manually added during final data processing after the field data has been entered into the YRLSP’s offline ArcGIS geodatabase. It provides a quick method of sorting records regarding the observed presence or absence of any leafy spurge biological control species during monitoring activities. A “yes” value can include observations (noted in the **comments** field) of biocontrol insects on vegetation in the monitoring plot vicinity, whether they were collected in a net or not.

comments

The comments field for the monitoring plot provides the option of including additional observations or qualifications of how the monitoring protocol was conducted.

soiltype

“Soil Type.” In the first few years of monitoring, a soil sample was collected during the initial monitoring plot site visit. Final identification of the soil type was generally completed and entered into this field at a later date. In recent years soil sampling has been discontinued. Options included:

- Sandy loam
- Loam
- Silt loam
- Sandy clay loam
- Clay loam
- Silty clay loam
- No developed soil

nonsoil

“Nonsoil Type.” If the plot falls under the “No Developed Soil” option for Soil Type (above), OR if developed soils are very limited in the plot area, this field allows for the selection of a nonsoil type. The field data collection tablet form provides a pick list:

- Sand (<2mm)
- Gravel (2mm to 64mm)
- Cobble (>64mm)

state

county

ownrtype

“Property ownership type.”

rel_yn

“Was There A Biological Control Release Today?” The field data collection tablet form requires a “yes” or “no” value. A “no” value (signifying that no insects were released during the current monitoring activities) will automatically skip the biological control insect release data collection fields in the data form (which includes the **rel_spp**, **rel_cnt**, and **rel_cmnts** fields).

rel_type

“Classical” releases involve one standard biocontrol container per species (typically 1000 *Aphthona* and/or 50–100 *Oberea*), released within (or on the edges) of a monitoring plot. “Inundative” releases involve larger quantities of either or both species, typically released in multiple locations spread over a larger area within a YRLSP Monitoring Site.

rel_spp

“Released Species.” The biological control insects available to the YRLSP for release are typically only identified to genus for the *Aphthona* genus. The YRLSP monitoring protocol further differentiates insects in this genus by color. (See the “YRLSP Biological Control Species ID Guide” available in the YRLSP Documents list at <https://www.yampariverleafyspurgeproject.com/resources>). The field data collection tablet form provides a pick list for entering “species” in this data field, and multiple options can be entered:

None

Aphthona – black (includes all black species of leafy spurge flea beetles)

Aphthona – brown (includes all brown species of leafy spurge flea beetles)

Oberea (the leafy spurge longhorn stem-boring beetle, *Oberea erythrocephala*)

rel_cnt

“Release Count.” The total quantity of biological control insects released on the monitoring date. This number combines the count for all three potentially released “species.”

rel_cmnts

“Release Comments.” This text field is optional, but should be used (when applicable) to further specify the quantities of the individual “species” released on the monitoring date.

nphoto, ephoto, sphoto, wphoto

“Photograph File Number.” The YRLSP Full Sweep and Photo biological control monitoring protocols include taking four photographs from the center of the plot, one for each cardinal direction.

ObsPhoto#

The Observation monitoring protocol allows for taking nondirectional photographs. These fields are for recording those photograph file numbers.

OP#cmnt

These fields allow for the recording of any pertinent comments regarding each Observation protocol photograph.

DisplayIM

“Display Interactive Map.” Multiple-year groups of monitoring points are symbolized identically in the Interactive Map (<https://www.yampariverleafyspurgeproject.com/interactivemap>) according to the value in this field. For example, all monitoring conducted during the period 2019–2021 are symbolized by the same color.