



# GREAT LAKES WORM WATCH DATA SHEET

Use this form when conducting multiple, fixed size plots (33 x 33 cm) using liquid mustard extration sampling in your site or location.

**Section 1 (Essential Data)** – This section of the data sheet is a list of essential variables that **must** be filled in before you submit and send you samples to GLWW. Section 2 is optional and contains additional sections for habitat information.

**Checklist** – use the check list below to ensure you have included all essential data when you send in your sample.

- General Site Information
- Geographic Location Method
- Sample Plot Size
- Plot Location Method Used
- Plot Numbers and Their Geographic Locations
- This form and labeled vial(s) containing preserved earthworms from your plots

## 1. General Site & Sampling Information

<b>Your Site Name:</b>		<b>Date of Sampling:</b>	
<b>Address:</b>			
<b>Phone:</b>		<b>Email:</b>	
<b>Observer(s) Name(s):</b>			

## 2. Geographic Location method used to generate location data for each plot in the habitat being sampled:

**Method used to determine the locations of your sample plots** (circle one) :

Hand Held GPS Unit      **OR**      iTouchMap (online)

For information and tutorials on methods for locating points see “An Introduction to Locating Sample Points” on the GLWW website <<http://www.nrri.umn.edu/worms/team/Intro-LocatingPoints.html>>

## 3. Sample plot size (circle/ fill):

33cm x 33 cm square (recommended) ;      Other: (please describe) \_\_\_\_\_

## 4. How did you determine the where to conduct your plot samples? (Circle one):

1. **Arbitrary** (no particular strategy)
2. **Randomly** (used a randomization method to locate the sample plots)
3. **Evenly Distributed Transect** (samples taken along a straight line with plots at regular intervals)
4. **Randomly Stratified Transect** (samples taken along a straight line in unequal intervals)

For a discussion of the difference between these sample designs and when to use them, see the “Research Methods – study design” section of the GLWW website <<http://www.nrri.umn.edu/worms/research/methods.html>>.



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5. **Plot Numbers and Geographic Locations** - Use this section to document the plot numbers, number of earthworms collected each of your sample plots. Print additional copies of this page as needed.

Plot number: _____
Number of Earthworms collected at this sample plot: _____
Geographic Coordinates of this Plot: Latitude: N _____. _____ ° Longitude: W - _____. _____ ° Latitude & Longitude need to be given in Decimal Degrees (e.g. N 46.78667, W -92.10048) if your GPS is not set in this format you will need to change its settings. For help see "An Introduction to Locating Sample Points" on the GLWW website < <a href="http://www.nrri.umn.edu/worms/team/Intro-LocatingPoints.html">http://www.nrri.umn.edu/worms/team/Intro-LocatingPoints.html</a> >
Accuracy of your plot coordinate as indicated by your GPS unit (not relevant for iTouchMap): _____ meters
What was the "Datum" used when collecting the plot geographic location (circle appropriate): NAD83 ; WGS84 ; Other: _____ If you don't understand what "datum" means see "An Introduction to Locating Sample Points" on the GLWW website < <a href="http://www.nrri.umn.edu/worms/team/Intro-LocatingPoints.html">http://www.nrri.umn.edu/worms/team/Intro-LocatingPoints.html</a> >; NOTE: iTouchMap uses the WGS84 datum.

Plot number: _____
Number of Earthworms collected at your sample plot: _____
Geographic Coordinates of Plot: Latitude: N _____. _____ ° Longitude: W - _____. _____ °
Accuracy of your plot coordinate as indicated by your GPS unit: _____ meters

Plot number: _____
Number of Earthworms collected at your sample plot: _____
Geographic Coordinates of Plot: Latitude: N _____. _____ ° Longitude: W - _____. _____ °
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Number of Earthworms collected at your sample plot: _____
Geographic Coordinates of Plot: Latitude: N _____. _____ ° Longitude: W - _____. _____ °
Accuracy of your plot coordinate as indicated by your GPS unit: _____ meters

6. Label the vial(s) containing the preserved earthworms from your sample plots with:

- a. Site name
- b. Plot Number
- c. Date collected

For preservation instructions see [http://www.nrri.umn.edu/worms/research/methods\\_worms\\_preserve.html](http://www.nrri.umn.edu/worms/research/methods_worms_preserve.html)

7. Mail forms and preserved earthworms to: **Great Lakes Worm Watch**  
**Natural Resources Research Institute, University of Minnesota Duluth**  
**5013 Miller Trunk Hwy., Duluth MN 55811**



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**Section 2 (Optional Data)** – This is a section for additional habitat and soil features of you study site(s). This data is not essential, HOWEVER can add further details of your study site for our database. IF you are sampling in multiple habitats (i.e. transects than span more than one habitat). Complete this page for each habitat sampled and indicate the corresponding plots within each habitat.

**Plot names within this habitat:** \_\_\_\_\_

**Habitat Type being surveyed** (circle the best match for the habitat surveyed in one of the 3 columns below)

<b>UPLAND</b> – sites that are dry or moist.	<b>LOWLAND</b> – sites that are wet, permanently or periodically.	<b>HUMAN DOMINATED</b> – Cities, villages, farmstead and rural homes.
<ul style="list-style-type: none"> <li>- Agricultural crops</li> <li>- Agricultural Field or Pasture</li> <li>- Hedgerow Old / Fallow Fields</li> <li>- Dry Prairie, Grassland, or Open Barrens</li> </ul> <p><b>Shrubland and Savanna</b></p> <ul style="list-style-type: none"> <li>- Deciduous Shrubs</li> <li>- Trees Coniferous Shrubs</li> <li>- Trees Mixed Shrubs</li> </ul> <p><b>Forest and Woodland</b></p> <ul style="list-style-type: none"> <li>- Deciduous Trees</li> <li>- Coniferous Trees</li> <li>- Mixed Trees</li> </ul>	<ul style="list-style-type: none"> <li>- Open Water and Wetland Marsh</li> <li>- Lake, Pond, Reservoir, or Impoundment</li> <li>- River or Stream</li> <li>- Agricultural crops</li> <li>- Agricultural Field or Pasture</li> <li>- Hedgerow Old / Fallow Fields</li> <li>- Wet Meadow, Prairie, or Open Sedge Bog</li> </ul> <p><b>Shrubland and Savanna</b></p> <ul style="list-style-type: none"> <li>- Deciduous Shrubs</li> <li>- Trees Coniferous Shrubs</li> <li>- Trees Mixed Shrubs</li> </ul> <p><b>Forest and Woodland</b></p> <ul style="list-style-type: none"> <li>- Deciduous Trees</li> <li>- Coniferous Trees</li> <li>- Mixed Trees</li> </ul>	<p><b>Urban Areas</b></p> <ul style="list-style-type: none"> <li>- Roadway or Ditch</li> <li>- Residential Area Open Space</li> <li>- Commercial or Industrial Area</li> <li>- Waste Water Treatment Site</li> </ul> <p><b>Rural Areas</b></p> <ul style="list-style-type: none"> <li>- Roadway or Ditch</li> <li>- House or Farmstead and Lawn</li> <li>- Park, Golf Course, Mowed</li> <li>- Recreation Area Commercial or Industrial Site</li> </ul>

**Habitat Size:** (circle the best match for the habitat you are sampling)

0-2 acres	2-5 acres	5-20 acres	20-40 acres	40-100 acres	100+ acres
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**Disturbance:** (circle all that apply for the habitat you are sampling)

Historic grazing/farming	Historic logging	Current grazing/farming	Current logging
Recreation-motorized	Recreation non- motorized	Fishing	Unknown
Other: (please describe)			

**Surrounding Land Use:** (circle all that apply for the habitat you are sampling)

Urban Development	Suburban Development	Rural Development	Mostly similar to the habitat sampled
Wetlands	Forested	Lakes	Streams and Rivers

**Basic Soil Features:** Pretend that any fresh, or whole dried leaf litter from last fall is not there. Now, tell me what percent of the surface is composed of bare or exposed soil: (circle the best match for the habitat sampled)

0-5%	5-25%	25-50%	50-75%
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Is there any **Forest Floor layer** (spongy partially decomposed leaf material) present? (Circle one) **YES** **NO**

If yes, what is the **average thickness**? (Circle one) 0-2 cm 2-4 cm 4-6 cm 6-10 cm 10+ cm

If yes, is **layering of the forest floor apparent**? (fresh litter on top of a layer of fragmented and partially decomposed litter and perhaps even a layer of very decomposed litter beneath that?) **YES** **NO**

**Soil Texture:** use the **Simplified Key to Mineral Soil Texture** provided on GLWW website

<[http://www.nrri.umn.edu/worms/research/methods\\_soils.html](http://www.nrri.umn.edu/worms/research/methods_soils.html)> ,

Circle one:

Sand	Loamy sand	Loam or sandy loam	Silt loam
Sandy clay loam - clay loam	Silty clay loam – silt	Sandy clay - clay	Silty - clay