



## Research Permit

### *Crane Hollow Nature Preserve*

*A Dedicated Ohio State Nature Preserve*

16820 State Route 678

Rockbridge, Ohio 43149

p. 740-438-5777 f. 740-879-2809

#### **GUIDELINES:**

- 1.) For any research or collecting activities to be conducted at Crane Hollow Nature Preserve, the following application and a detailed research proposal must be submitted and received by Crane Hollow at the address listed above.
- 2.) The detailed research proposal must include an introduction, methods, materials and how the data will be used (e.g. publication, thesis, poster, oral presentation, etc.)



### *Crane Hollow Nature Preserve Research Permit*

**Name of Applicant:** Katherine Manning

**Affiliation/Title:** Kent State University PhD Student

**Address:** Dept of Biological Sciences PO Box 5190

**City:** Kent

**State:** OH **Zip:** 44240 **Phone number (s):** (906) 241-2994 (cell)

**Email:** kmanni12@kent.edu

**Date(s):** TBD June, July, August 2019 **Times(s):** TBD

#### **If applicant is a student, please provide advisor's information:**

**Name of Advisor:** Dr. Christie Bahlai

**Affiliation/Title:** Assistant Professor, Kent State University

**Address:** Dept of Biological Sciences PO Box 519

**City:** Kent

**State:** OH **Zip:** 44240 **Phone number (s):** (330) 672-9775

**Email:** cbahlai@kent.edu

#### **Name(s) of other participants assisting with this project:**

**Name:** Julia Perrone **Phone:** (269) 806-1467

**Name:** Tim Niepokny **Phone:** (440) 897-8964

**Name:** \_\_\_\_\_ **Phone:** \_\_\_\_\_

**Name:** \_\_\_\_\_ **Phone:** \_\_\_\_\_

**Frequency of visits & project duration**

(specify when the permit is needed, e.g. June – September):

June – August 2019 (and 2020)

Traps would be deployed for one week during each month. Travel to sites needed for each set up and take down of traps.

**Research Description**

Provide a brief description of activities including the objectives of the research. List the types of materials and equipment to be used, collecting information including number so species or specimens and amounts of each to be collected. Also state any potential disturbances to be made. (Specific information will be included in your detailed research proposal):

The following is an abstract to the poster of my experimental plans, that I am currently designing:

Green roofs provide urban environments and the humans within them with many services, including stormwater retention, reduced energy consumption and habitat for organisms. However, due to the physical constraints of many green roof environments, green roof habitats are typically characterized by thin soils experiencing drought, flood, wind and intense solar radiation. Natural habitats with these characteristics are relatively rare, however, some intact thin soil environments occur in the Great Lakes basin. Our research examines the plant and insect communities arising around these natural and built thin-soil environments, to gain insight into how these habitats contribute service and function to the greater landscape. Insect communities are key contributors to several ecosystem services, including pollination, pest control, and decomposition. Improving our understanding of how insects in these habitats function is important to guide efforts to design structurally-analogous elements intended to deliver services in urban environments. We will sample three functional groups of insects (pollinators, natural enemies and decomposers) in green roofs and natural areas that are similar to green roof structure, while characterizing the plants and other physical attributes of each site. Once identified, we will compare communities between and within built and natural systems of various characteristics, and the functional ecology can be described. Our work will inform design of green roofs so that their services can improve biodiversity services in urban environments.

The traps have yet to be built, but they will be bee bowls, sticky cards and ramp traps. Materials will be mostly plastic, paper, and metal, with soapy water and ethanol to be used in bowls and ramp traps. These are all passive sampling traps, so we do not know yet what will be collected with them. Hundreds or potentially thousands of insects will be collected through the summer, but this should have little to no impact on the insect communities because certain species are not being targeted. Some bycatch in the ramp traps is possible (ie mice, frogs, etc) but precautions will be taken to limit it. Potential disturbances include minor impact on the soil due to foot traffic and trap placement.

**Intended disposition of collected specimens (e.g. herbarium, museum):**

Plant specimens will be stored at Kent State herbarium. Insects can be transferred to a museum after research is over.

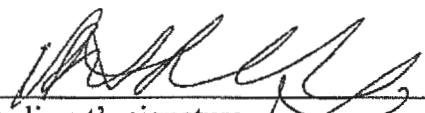
**For fauna collection, additional permits may be required**


Collector's permit held (e.g. USFWS, DOW)? \_\_\_\_ yes \_\_\_\_x\_\_no

If yes, what kind: \_\_\_\_\_

**How will this project benefit the management or knowledge of Crane Hollow Nature Preserve?**

All species lists and data will be shared with Crane Hollow Nature Preserve. This will benefit the preserve by giving knowledge of insect species present.

 Date: 1/21/19  
Applicant's signature

 Date: 2/15/19  
Heather Stehle, Executive Director, Crane Hollow, Inc.