

Supplementary Organismal and Site-specific Information Collected via *Nature's Notebook*

The USA National Phenology Network (USA-NPN; www.usanpn.org) serves science and society by promoting broad understanding of plants and animal phenology and its relationship with environmental change. A key activity of USA-NPN has been the creation of *Nature's Notebook*, a national plant and animal phenology observation program appropriate for scientists and nonscientists alike. Through this program, participants collect phenology observations on hundreds of species of plants and animals following scientifically rigorous protocols. Observers then enter these observations in the national phenology database maintained by USA-NPN, and the resulting data are freely available for query, visualization, and download on the USA-NPN website (www.usanpn.org/results/data).

In addition to data on phenological events, observers are invited to provide a range of ancillary information about their sites, individual plants, and observation instances. The following table summarizes these fields. Because most of these fields are optional, some sites will not contain all of the following information.

Site Metadata

Question	Description	Options
Latitude/Longitude ¹	Automatically generated for each site or can be entered manually	Value in WGS 84 datum
Elevation ¹	Automatically generated for each site or can be entered manually	Value in feet
Degree of development surrounding site		Urban, Suburban, Rural, Wildlands/semi-wildlands, other
Landscape description	How the site can be best described in terms of landscape characteristics or vegetation type	Paved, Landscaped, Shrubland, Forest, etc.
Type of forest at site	If forested, what type of trees are at the site	Deciduous, Evergreen, Mixed, other
Slope	Whether the site is on or near a slope and the placement of site relative to the slope	Presence of slope; On the top of the slope, in the middle of the slope, at the bottom or in a valley between slopes
Area of site	Estimated total area of site	
Aspect	Direction the slope (if present) faces	N, NE, E, SE, S, etc.

¹ Required field

Site Metadata, continued

Question	Description	Values
<i>Proximity to road</i>	Distance of center of site to nearest paved or maintained dirt road	User entered value of feet, yards, or miles
<i>Proximity to permanent water</i>	Distance of center of site to nearest permanent body of water	User entered value of feet, yards, or miles
<i>Presence of domesticated animals</i>		Dogs, Cats, Other (with free text to explain "Other")
<i>Presence of garden</i>	Presence of a flower or vegetable garden maintained at the site	Yes, No, Unknown
<i>Presence of features designed to attract animals</i>		Bird feeder, Nest box, Fruit, Birdbath/artificial pond, Other (with free text to explain "Other")
<i>Comments</i>	General comments for the site	Free text box

Individual Plant Metadata

Question	Description	Values
<i>Patch</i>	Whether a patch of many individual stems is the unit of observation instead of a single individual plant (often used for low-growing clonal plants)	Checkbox
<i>Patch size</i>	Size of delineated patch (if patch is used)	User entered value of square feet or square yards
<i>Shade status</i>	The shade status or canopy position of the plant	Sun, Mostly sun, Half shade, Forest canopy, Forest understory, etc.
<i>Wild</i>	Whether the plant was grown from a seed brought there naturally by wind, water, or animal	Yes, No, Unknown
<i>Watered</i>	Whether the individual plant receives supplemental water	Yes, No, Unknown
<i>Fertilized</i>	Whether the individual plant receives supplemental fertilizer	Yes, No, Unknown
<i>Gender</i>	The gender of the individual plant (used for dioecious species)	Male, Female, Both, Unknown
<i>Planting Date</i>	The date of planting if the individual plant is not wild	User entered day, month, and year
<i>Death</i>	Whether the individual plant has died	Checkbox

Individual Plant Metadata, continued

Question	Description	Options
<i>Date death observed</i> ¹		Calendar popup
<i>Last date observed alive</i>		Calendar popup
<i>Apparent reason of death</i>		Competition, Disease, Drought, Unknown
<i>Death comment</i>		Free text box
<i>Comments</i>	General comments for the individual plant	Free text box

Individual Observation² Metadata

Question	Description	Values
<i>Time spent in travel to site and time spent observing</i>	How much time was spent getting to the site; how much total time was spent observing plants and animals	User entered value of minutes or hours
<i>Time spent looking for animals</i>	How much time was spent specifically searching for animals	User entered value of minutes or hours
<i>Animal survey method</i>	Which of four methods was used for searching for animals	Incidental, Stationary, Walking, or Area search
<i>Snow on ground</i>	Presence or absence of snow on the ground	Yes, No, Unknown
<i>Snow cover percentage</i>	Estimated percent of ground covered by snow (if present)	User entered percentage
<i>Snow in canopy</i>	Presence or absence of snow in the tree canopy	Yes, No, Unknown
<i>Comments</i>	General comments for the individual observation (separate comment for each registered plant and animal)	Free text box

For more information, please contact:

USA National Phenology Network National Coordinating Office
1955 E. Sixth St., Tucson, AZ 85721
nco@usanpn.org

¹ Required field

² Observers use *Nature's Notebook* to record the phenological status of plants and animals, by making regular observations of plants and animals, and recording the status of the phenophase at each visit to a site. This approach provides information on presence, absence, and duration of phenophases, facilitates exploration of the relationship between phenology and climatic variables, and permits more precise quantification of the potential error involved in observations.