

<i>Title:</i> TOS Site Characterization Report: Domain 15		<i>Date:</i> 11/20/2018
NEON Doc. #: NEON.DOC.003898	<i>Author:</i> R.Krauss	<i>Revision:</i> B

TOS SITE CHARACTERIZATION REPORT: DOMAIN 15

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<i>Title:</i> TOS Site Characterization Report: Domain 15		<i>Date:</i> 11/20/2018
NEON Doc. #: NEON.DOC.003898	<i>Author:</i> R.Krauss	<i>Revision:</i> B

CHANGE RECORD

REVISION	DATE	ECO#	DESCRIPTION OF CHANGE
A	06/12/2017	ECO-04826	Initial Release
B	11/20/2018	ECO-05648	<ul style="list-style-type: none"> • Added soil pit information table • Added percent cover of bryophyte to the plant diversity table

<i>Title:</i> TOS Site Characterization Report: Domain 15	<i>Date:</i> 11/20/2018
NEON Doc. #: NEON.DOC.003898	Author: R.Krauss

TABLE OF CONTENTS

1 DESCRIPTION	1
1.1 Purpose	1
1.2 Scope	1
2 RELATED DOCUMENTS AND ACRONYMS	1
2.1 Applicable Documents	1
2.2 Reference Documents	1
2.3 Acronyms	2
3 DOMAIN 15 OVERVIEW: GREAT BASIN DOMAIN	3
4 CORE SITE- ONAQUI (ONAQ)	5
4.1 TOS Spatial Sampling Design	6
4.2 Sampling Season Characterization: ONAQ	11
4.3 Belowground Biomass	13
4.3.1 Site-Specific Methods	13
4.3.2 Results	13
4.4 Plant Characterization and Phenology Species Selection	15
4.4.1 Site-Specific Methods	15
4.4.2 Results	16
4.5 Beetles	18
4.5.1 Site-Specific Methods	18
4.6 Mosquitoes	18
4.6.1 Site-Specific Methods	18
4.6.2 Results	18
4.7 Ticks	19
4.7.1 Site-Specific Methods	19
4.8 Species Reference Lists	19
5 REFERENCES	20
6 APPENDIX A: DATA PRODUCT NUMBERS	20

LIST OF TABLES AND FIGURES

Table 1	NLCD land cover classes and area within the TOS site boundary at ONAQ.	9
Table 2	NLCD land cover classes and TOS plot numbers at ONAQ.	9
Table 3	Number of Distributed Base Plots per NLCD land cover class per protocol at ONAQ.	10
Table 4	Number of Tower Plots per protocol at ONAQ.	10
Table 5	Average MODIS-EVI greenness dates for the NEON ONAQ site, based on data from 2003-2013 (DOY, with MM/DD in parentheses).	12
Table 6	Soil Pit Information at ONAQ.	13
Table 7	Fine root mass per depth increment (cm) at ONAQ.	13

<i>Title:</i> TOS Site Characterization Report: Domain 15	<i>Date:</i> 11/20/2018
NEON Doc. #: NEON.DOC.003898	Author: R.Krauss

Table 8	Cumulative fine root mass as a function of depth (cm) at ONAQ.	14
Table 9	Fine root biomass sampling summary data at ONAQ.	15
Table 10	Site plant characterization and phenology species summary at ONAQ.	16
Table 11	Per plot breakdown of species richness, diversity, and herbaceous cover at ONAQ.	17
Table 12	Mosquito identification results at ONAQ.	18
Table 13	NEON data product names and descriptions.	20
Figure 1	NEON project map with Domain 15 highlighted in red.	3
Figure 2	Site boundaries within Domain 15.	3
Figure 3	Phenocamera image for ONAQ. The phenocamera is located at the top of the NEON tower and faces north. Phenocamera images are available at https://phenocam.sr.unh.edu/webcam/network/table/	5
Figure 4	Map of TOS plot centroids within the NEON TOS sampling boundary at ONAQ.	7
Figure 5	Map of the tower airshed and TOS plot centroids at ONAQ.	8
Figure 6	MODIS-EVI greenness (y-axis = EVI ratio) as a function of time (x-axis = DOY) for the years 2003-2013 at the NEON ONAQ site.	12
Figure 7	Cumulative root mass by pit depth at ONAQ.	15

<i>Title:</i> TOS Site Characterization Report: Domain 15		<i>Date:</i> 11/20/2018
NEON Doc. #: NEON.DOC.003898	<i>Author:</i> R.Krauss	<i>Revision:</i> B

1 DESCRIPTION

1.1 Purpose

Domain and site-specific information collected and described here is used to inform the execution of protocols for the NEON Terrestrial Observation System (TOS), and complements the official NEON TOS data products generated from each site. In addition, the TOS spatial layout and plot allocation is described for each site within the domain.

1.2 Scope

This document includes any site specific characterization methods and the results of characterization efforts for Onaqui site in Great Basin domain. For more information about the sampling methods, reference the TOS Site Characterization Methods Document (RD[06]). The geographic coordinates for all TOS sampling locations can be found in the Reference Documents area of the NEON Data Portal and are provided with TOS data product downloads.

2 RELATED DOCUMENTS AND ACRONYMS

2.1 Applicable Documents

Applicable documents contain information that shall be applied in the current document. Examples are higher level requirements documents, standards, rules and regulations.

AD[01]	NEON.DOC.004300	EHSS Policy, Program, and Management Plan
AD[02]	NEON.DOC.050005	Field Operations Job Instruction Training Plan
AD[03]	NEON.DOC.000909	TOS Science Design for Ground Beetle Abundance and Diversity
AD[04]	NEON.DOC.000910	TOS Science Design for Mosquito Abundance, Diversity and Phenology
AD[05]	NEON.DOC.000912	TOS Science Design for Plant Diversity
AD[06]	NEON.DOC.000915	TOS Science Design for Small Mammal Abundance and Diversity
AD[07]	NEON.DOC.000914	TOS Science Design for Plant Biomass and Productivity
AD[08]	NEON.DOC.000001	NEON Observatory Design

2.2 Reference Documents

Reference documents contain information complementing, explaining, detailing, or otherwise supporting the information included in the current document.

<i>Title:</i> TOS Site Characterization Report: Domain 15		<i>Date:</i> 11/20/2018
NEON Doc. #: NEON.DOC.003898	<i>Author:</i> R.Krauss	<i>Revision:</i> B

RD[01]	NEON.DOC.000008	NEON Acronym List
RD[02]	NEON.DOC.000243	NEON Glossary of Terms
RD[03]	NEON.DOC.000913	TOS Science Design for Spatial Sampling
RD[04]	NEON.DOC.011044	TIS Site Characterization Report
RD[05]	NEON.DOC.001857	AIS Site Characterization Report
RD[06]	NEON.DOC.003885	TOS Site Characterization Methods
RD[07]	NEON.DOC.000481	TOS Protocol and Procedure: Small Mammal Sampling
RD[08]	NEON.DOC.014041	TOS Protocol and Procedure: Breeding Landbird Abundance and Diversity
RD[09]	NEON.DOC.014042	TOS Protocol and Procedure: Plant Diversity Sampling
RD[10]	NEON.DOC.000987	TOS Protocol and Procedure: Measurement of Vegetation Structure
RD[11]	NEON.DOC.014040	TOS Protocol and Procedure: Plant Phenology
RD[12]	NEON.DOC.001709	TOS Protocol and Procedure: Bryophyte Productivity

2.3 Acronyms

Acronym	Definition
BOLD	Barcode of Life Datasystems
NLCD	National Land Cover Database

3 DOMAIN 15 OVERVIEW: GREAT BASIN DOMAIN

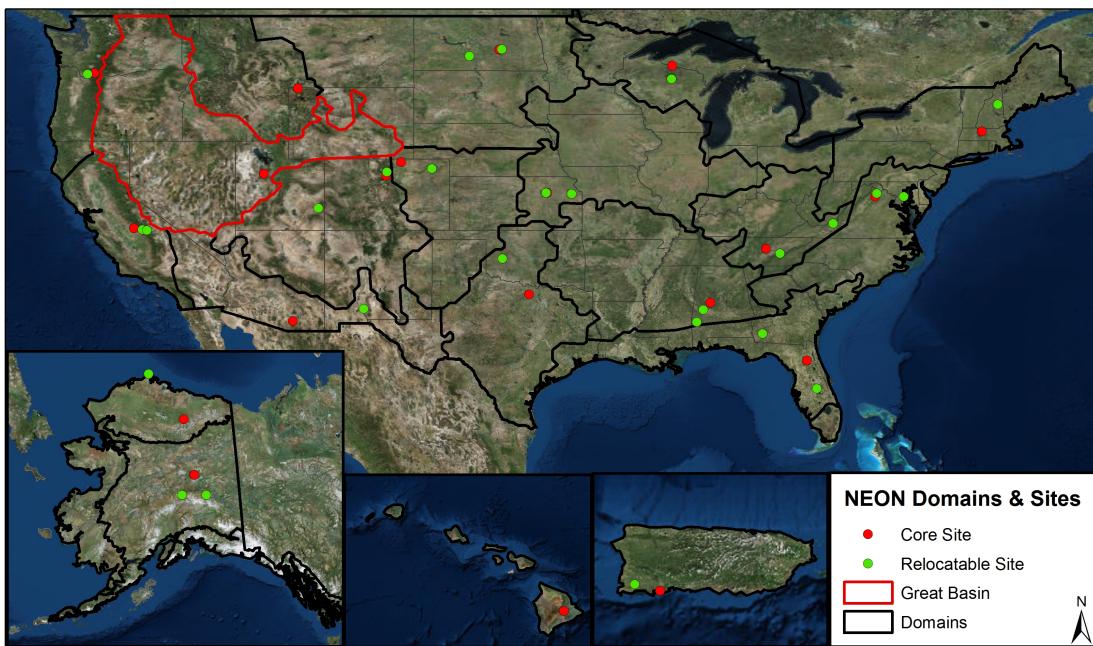


Figure 1: NEON project map with Domain 15 highlighted in red.

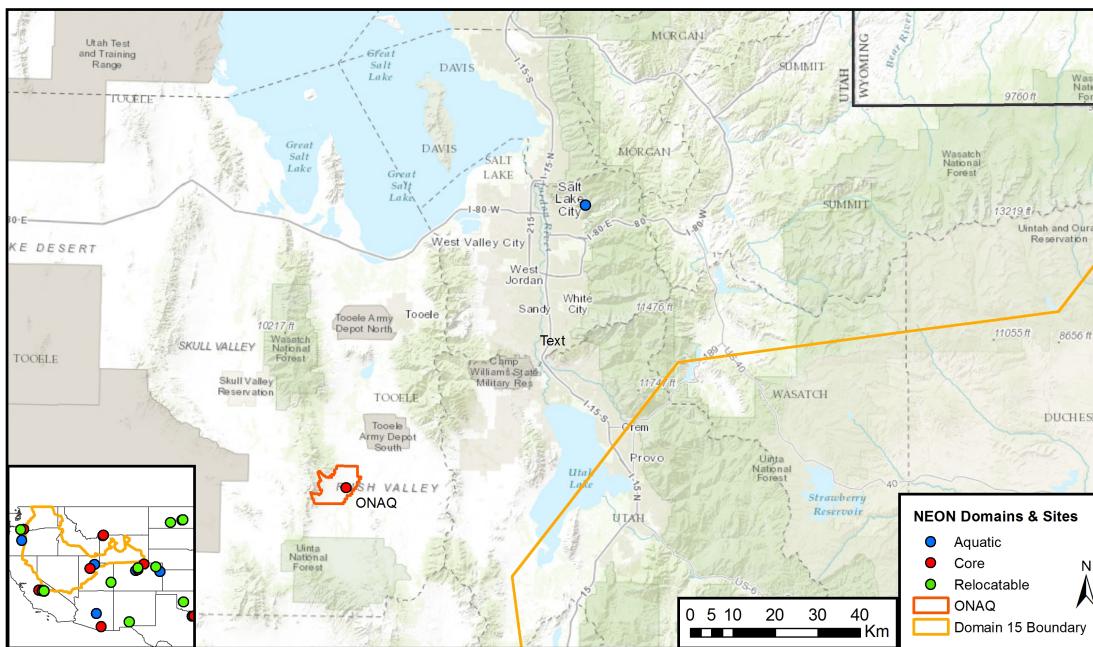


Figure 2: Site boundaries within Domain 15.

<i>Title:</i> TOS Site Characterization Report: Domain 15		<i>Date:</i> 11/20/2018
NEON Doc. #: NEON.DOC.003898	<i>Author:</i> R.Krauss	<i>Revision:</i> B

The Great Basin Domain is bordered by the Sierra Nevada to the west, the Rocky Mountains and Colorado Plateau to the east, the Mojave Desert to the south, and the Columbia Plateau to the north. The D15 NEON site is situated to address grand challenge questions centered around land use change, climate impacts, and disturbance processes (e.g., dust deposition).

- States included in the domain: California, Idaho, Nevada, Oregon, Utah, Washington, and Wyoming
- Core site: Onaqui
- Science themes: Climate Change, Invasive Species

<i>Title:</i> TOS Site Characterization Report: Domain 15		<i>Date:</i> 11/20/2018
<i>NEON Doc. #:</i> NEON.DOC.003898	<i>Author:</i> R.Krauss	<i>Revision:</i> B

4 CORE SITE- ONAQUI (ONAQ)

The Onaqui site is located approximately 80km southwest of Salt Lake City and is characterized by the sagebrush and western juniper community that dominates the Great Basin.

NEON.D15.ONAQ.DP1.00033 - NetCam SC IR - Mon Mar 20 2017 22:00:05 UTC
 Camera Temperature: 43.0
 Exposure: 41



Figure 3: Phenocamera image for ONAQ. The phenocamera is located at the top of the NEON tower and faces north. Phenocamera images are available at <https://phenocam.sr.unh.edu/webcam/network/table/>.

Key Characteristics:

- Site host: Bureau of Land Management
- Located in: Tooele County, Utah
- Sampling Area: 68 km²
- Plot Elevation: 1,600- 2,065m
- Dominant vegetation type: The eastern half of the site is dominated by Big Sagebrush (*Artemesia tridentata*). Along the base of the Onaqui Mountains the vegetation transitions into Utah Juniper (*Juniperus osteosperma*) and Pinyon Pine (*Pinus edulis*) woodland.
- General management: The Onaqui site has been grazed by domestic livestock since settlement. Fire has historically been present in this sagebrush steppe ecosystem. However, invasion by cheatgrass (*Bromus tectorum*), and other exotic annuals has dramatically shortened fire return intervals. The invasion-fire feed-

<i>Title:</i> TOS Site Characterization Report: Domain 15	<i>Date:</i> 11/20/2018
NEON Doc. #: NEON.DOC.003898	<i>Author:</i> R.Krauss <i>Revision:</i> B

back has resulted in the loss of native perennial species from extensive areas of the region. Brush hogging and other tree removal techniques are currently used to restore sagebrush at Onaqui after decades of woodland expansion (Sagebrush Steppe SageSTEP, 2013).

- Plot Selection: NEON TOS Plots were allocated across the site following NEON standard criteria and avoiding existing research. Due to the large size of the permitted boundary and logistical restrictions, TOS sampling that occurs at a greater frequency has been constrained to within 500m of a road in the juniper-pinyon habitat type.

4.1 TOS Spatial Sampling Design

TOS Distributed Plots were allocated at ONAQ according to a spatially balanced and stratified-random design (RD[3]). The 2006 National Land Cover Database (NLCD) was selected for stratification because of the consistent and comparable data availability across the United States. TOS Tower Plots were allocated according to a spatially balanced design in and around the NEON tower airshed (RD[03]). The maps below depict the plot locations for the first year of NEON sampling. Some plot locations may change over time due to logistics, safety, and science requirements. Please visit the NEON website (<http://www.neonscience.org>) for updated plot locations at each site.

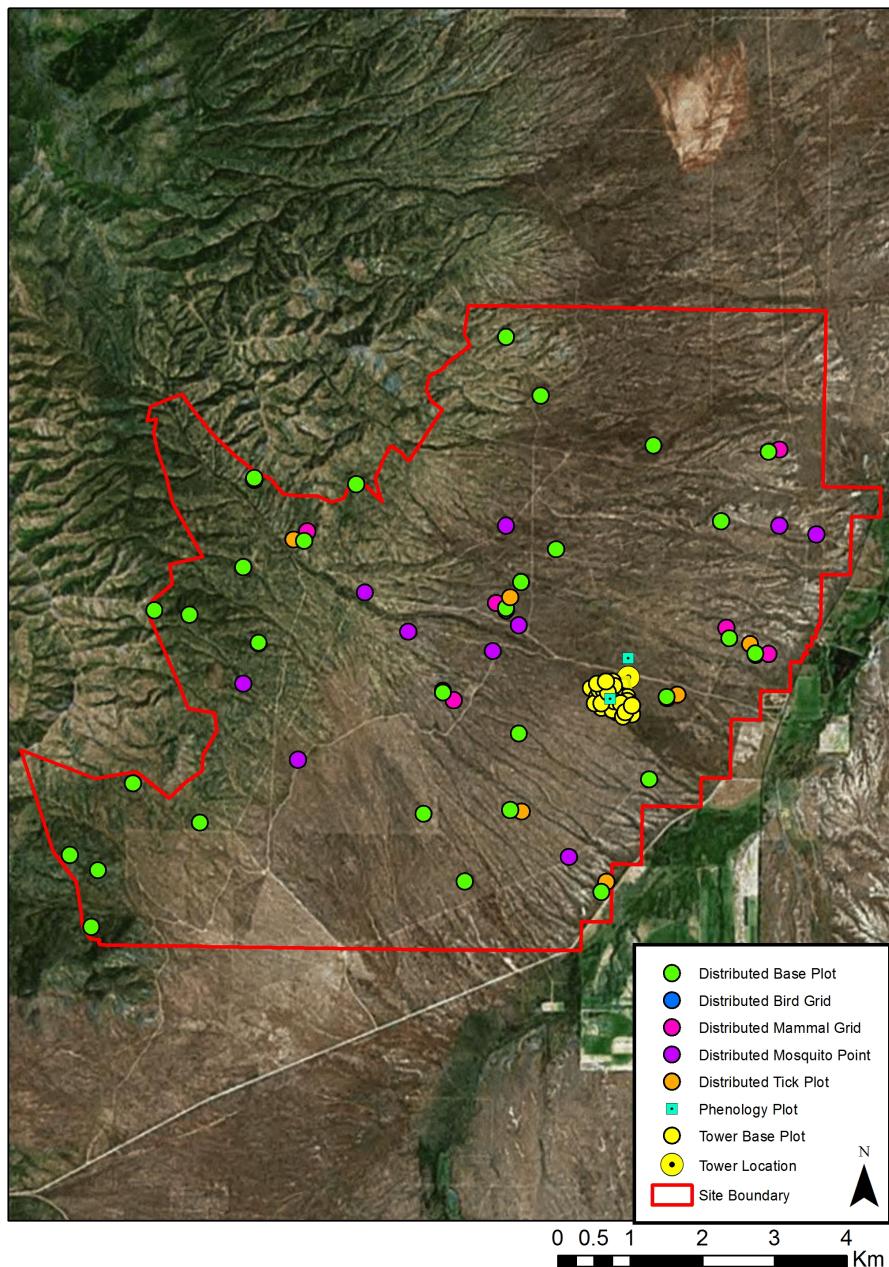


Figure 4: Map of TOS plot centroids within the NEON TOS sampling boundary at ONAQ.

For a list of protocols associated with each plot see tables below; for additional spatial design information see

RD[03].

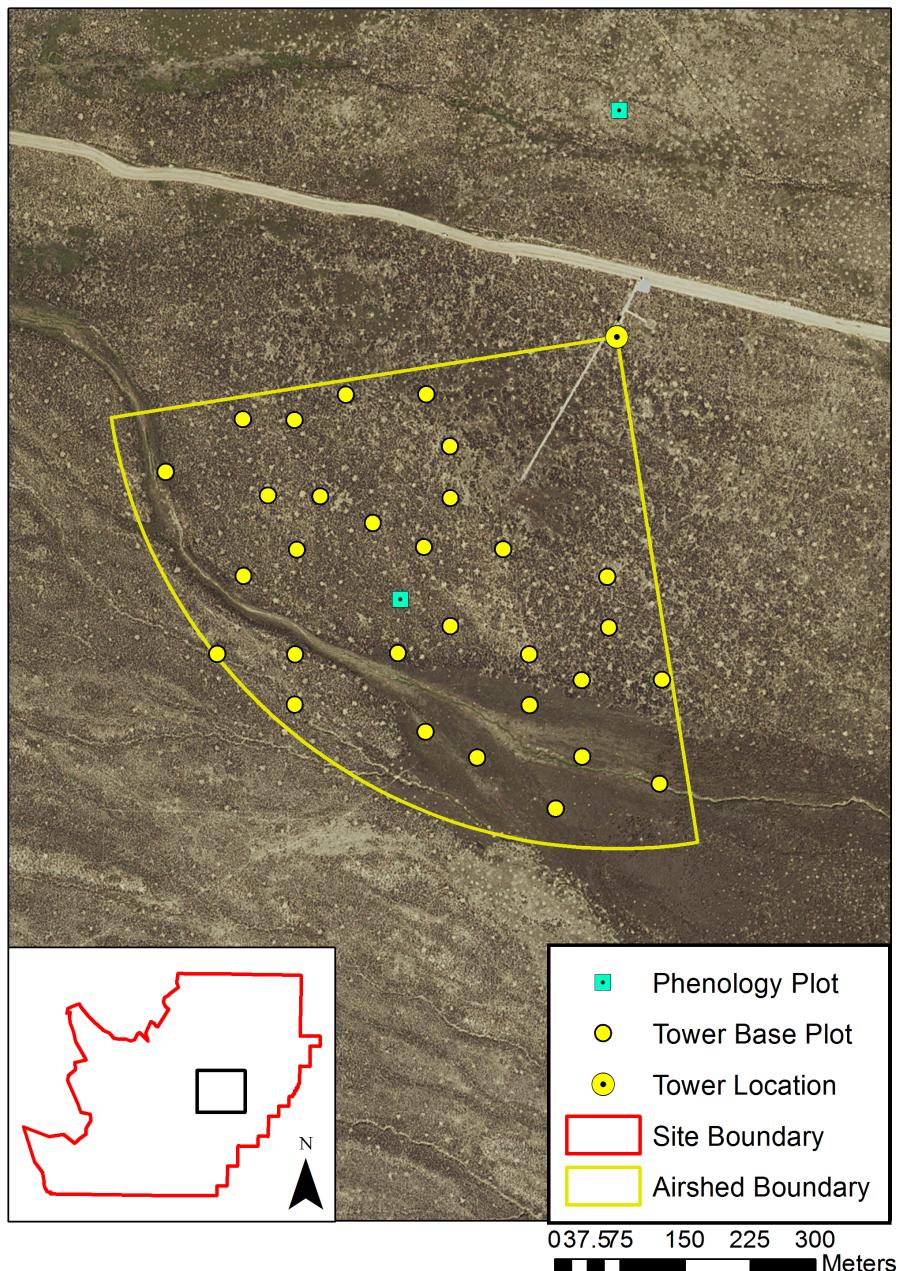


Figure 5: Map of the tower airshed and TOS plot centroids at ONAQ.

Title: TOS Site Characterization Report: Domain 15		Date: 11/20/2018
NEON Doc. #: NEON.DOC.003898	Author: R.Krauss	Revision: B

More information about the tower airshed can be found in the FIU site characterization report (RD[04]).

Table 1: NLCD land cover classes and area within the TOS site boundary at ONAQ.

NLCD Class	Site Area (km ²)	Percent (%)
Shrub Scrub	68.85	62.69
Evergreen Forest	37.39	34.04
Grassland Herbaceous	3.31	3.02
Developed Low Intensity	0.08	0.07
Developed Open Space	0.06	0.06
Deciduous Forest	0.07	0.06
Pasture Hay	0.06	0.05
Woody Wetlands	0.01	0.01

Note: Any NLCD land cover classes less than 5% will not be sampled. Additionally, no sampling will take place in Water, Developed, or Barren Land NLCD classes.

Table 2: NLCD land cover classes and TOS plot numbers at ONAQ.

Plot Type	Plot Subtype	NLCD Class	Number of Plots Established
Distributed	Base Plot	Evergreen Forest	13
Distributed	Base Plot	Shrub Scrub	17
Distributed	Bird Grid	Evergreen Forest	2
Distributed	Bird Grid	Shrub Scrub	4
Distributed	Mammal Grid	Evergreen Forest	1
Distributed	Mammal Grid	Shrub Scrub	5
Distributed	Mosquito Point	Evergreen Forest	2
Distributed	Mosquito Point	Shrub Scrub	8
Distributed	Tick Plot	Evergreen Forest	1
Distributed	Tick Plot	Shrub Scrub	5
Tower	Base Plot	NA	30
Tower	Phenology Plot	NA	2

Note: NLCD land cover classes are not used to stratify Tower Plots which are located in and around the NEON tower airshed. The dominant NLCD land cover types within the airshed are shrub scrub and grassland herbaceous.

Title: TOS Site Characterization Report: Domain 15			Date: 11/20/2018
NEON Doc. #: NEON.DOC.003898	Author: R.Krauss		Revision: B

Table 3: Number of Distributed Base Plots per NLCD land cover class per protocol at ONAQ.

Plot Type	Plot Subtype	NLCD Class	Protocols	Number of Plots
Distributed	Base Plot	Evergreen Forest	Beetles	2
Distributed	Base Plot	Shrub Scrub	Beetles	8
Distributed	Base Plot	Evergreen Forest	Canopy Foliage Chemistry	4
Distributed	Base Plot	Shrub Scrub	Canopy Foliage Chemistry	6
Distributed	Base Plot	Evergreen Forest	Coarse Downed Wood	7
Distributed	Base Plot	Shrub Scrub	Coarse Downed Wood	13
Distributed	Base Plot	Evergreen Forest	Digital Hemispherical Photos for Leaf Area Index	7
Distributed	Base Plot	Shrub Scrub	Digital Hemispherical Photos for Leaf Area Index	13
Distributed	Base Plot	Evergreen Forest	Herbaceous Biomass	7
Distributed	Base Plot	Shrub Scrub	Herbaceous Biomass	13
Distributed	Base Plot	Evergreen Forest	Plant Diversity	13
Distributed	Base Plot	Shrub Scrub	Plant Diversity	17
Distributed	Base Plot	Evergreen Forest	Soil Biogeochemistry	2
Distributed	Base Plot	Shrub Scrub	Soil Biogeochemistry	4
Distributed	Base Plot	Evergreen Forest	Soil Microbes	2
Distributed	Base Plot	Shrub Scrub	Soil Microbes	4
Distributed	Base Plot	Evergreen Forest	Vegetation Structure	7
Distributed	Base Plot	Shrub Scrub	Vegetation Structure	13

Note: Distributed Base Plots typically support more than one TOS protocol; 'Number of Plots' cannot be added to get total TOS Distributed Base Plot number.

Table 4: Number of Tower Plots per protocol at ONAQ.

Plot Type	Plot Subtype	Protocols	Number of Plots
Tower	Base Plot	Canopy Foliage Chemistry	4
Tower	Base Plot	Coarse Downed Wood	30
Tower	Base Plot	Digital Hemispherical Photos for Leaf Area Index	3
Tower	Base Plot	Herbaceous Biomass	30
Tower	Base Plot	Litterfall and Fine Woody Debris	30
Tower	Base Plot	Plant Belowground Biomass	30
Tower	Base Plot	Plant Diversity	3

<i>Title:</i> TOS Site Characterization Report: Domain 15	<i>Date:</i> 11/20/2018
NEON Doc. #: NEON.DOC.003898	<i>Author:</i> R.Krauss <i>Revision:</i> B

Plot Type	Plot Subtype	Protocols	Number of Plots
Tower	Base Plot	Soil Biogeochemistry	4
Tower	Base Plot	Soil Microbes	4
Tower	Base Plot	Vegetation Structure	30
Tower	Phenology	Plant Phenology	2

Note: Tower Base Plots typically support more than one TOS protocol; ‘Number of Plots’ cannot be added to get the total TOS Tower Base Plot number.

4.2 Sampling Season Characterization: ONAQ

For numerous TOS protocols, the length of the sampling season, the number of bouts, and when those bouts occur is dictated by the seasonal status of the plant community. By monitoring ‘greenness’ on a 16 day interval, the MODIS/Terra EVI phenology product provides consistent, reliable insight into plant community phenology and intensity at the continental scale. For those protocols for which timing is standardized by greenness transitions and/or peak green status, NEON has utilized these data as the primary means of guiding temporal aspects of TOS sampling at each site.

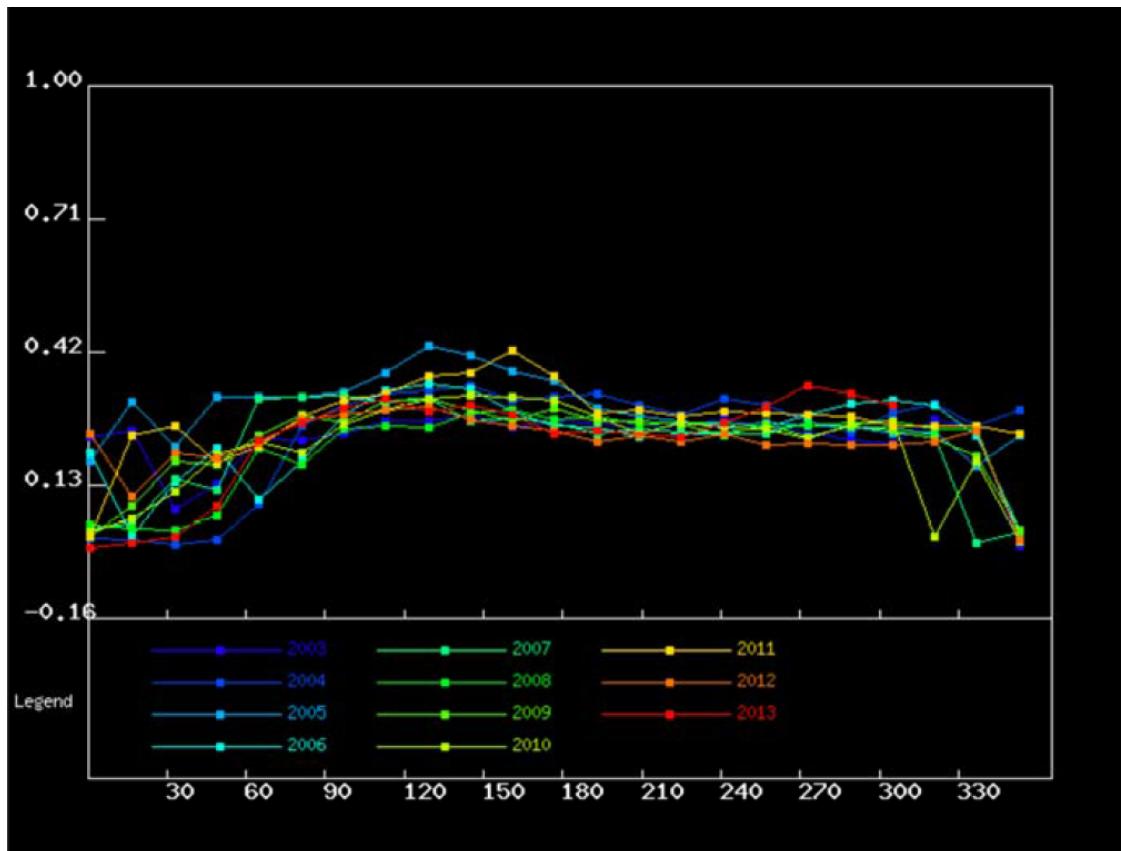


Figure 6: MODIS-EVI greenness (y-axis = EVI ratio) as a function of time (x-axis = DOY) for the years 2003-2013 at the NEON ONAQ site.

Table 5: Average MODIS-EVI greenness dates for the NEON ONAQ site, based on data from 2003-2013 (DOY, with MM/DD in parentheses).

Average Increase	Average Maximum	Average Decrease	Average Minimum
75 (03/17)	130 (05/11)	170 (06/20)	280 (10/08)

MODIS Product Details

- Product: MODIS-EVI phenology product, 16 day interval, 250 m grid, data included from all pixels with acceptable quality within user-defined square that roughly overlaps the TOS site boundary.
- Date range: 2003-2013
- User selected area: 34.25 km x 34.25 km box, centroid lat: 40.177819, centroid long: -112.4524 (WGS84 datum)

<i>Title:</i> TOS Site Characterization Report: Domain 15		<i>Date:</i> 11/20/2018
<i>NEON Doc. #:</i> NEON.DOC.003898	<i>Author:</i> R.Krauss	<i>Revision:</i> B

4.3 Belowground Biomass

4.3.1 Site-Specific Methods

Belowground biomass characterization data were collected down to a depth of 200 cm by NEON staff in June 2014. Since the NEON protocol for long-term, operational sampling of belowground biomass only collects data to a depth of 30 cm, the belowground biomass site characterization data are critical for scaling belowground biomass measurements to greater depths; see the TOS Science Design for Plant Biomass, Productivity, and Leaf Area Index (AD[7]) for more information. Samples were collected following the standard methods outlined in TOS Site Characterization Methods (RD[6]). Roots were sorted to two diameter size categories (≤ 4 mm and 4-30 mm) and by root status (live or dead). The tables below summarize all the belowground biomass less than or equal to 30 mm diameter; size class data and more information can be found by searching the NEON data portal for the data product numbers in Appendix A.

4.3.2 Results

Table 6: Soil Pit Information at ONAQ.

Latitude	Longitude	Soil Family	Soil Order
35.68839	-83.50185	Fine-loamy - mixed - superactive - mesic Xeric Haplocalcids	Aridisol

Soil Profile was described by Natural Resource Conservation Service (NRCS).

Table 7: Fine root mass per depth increment (cm) at ONAQ.

Upper Depth	Lower Depth	Mean (mg per cm ³)	Std Dev
0	10	0.71	0.09
10	20	2.12	2.37
20	30	1.84	1.51
30	40	1.12	1.12
40	50	0.52	0.29
50	60	0.59	0.36
60	70	1.79	0.75
70	80	1.22	0.36
80	90	0.39	0.07
90	100	0.21	0.09
100	120	0.1	0.06
120	140	0.02	0.02
140	160	0	0

Title: TOS Site Characterization Report: Domain 15		Date: 11/20/2018
NEON Doc. #: NEON.DOC.003898	Author: R.Krauss	Revision: B

Upper Depth	Lower Depth	Mean (mg per cm ³)	Std Dev
160	180	0	0
180	200	0	0

Table 8: Cumulative fine root mass as a function of depth (cm) at ONAQ.

Upper Depth	Lower Depth	Mean Cumulative (g per m ²)	Cumulative Std Dev
0	10	71.47	8.63
10	20	283.38	239.62
20	30	467.28	384.2
30	40	579.35	490.24
40	50	631.22	514.14
50	60	689.82	502.23
60	70	868.5	453.02
70	80	990.49	488.68
80	90	1029.79	488.03
90	100	1050.65	494.14
100	120	1070.2	504.06
120	140	1074.73	506.9
140	160	1075.54	507.5
160	180	1076.25	507.37
180	200	1076.57	507.59

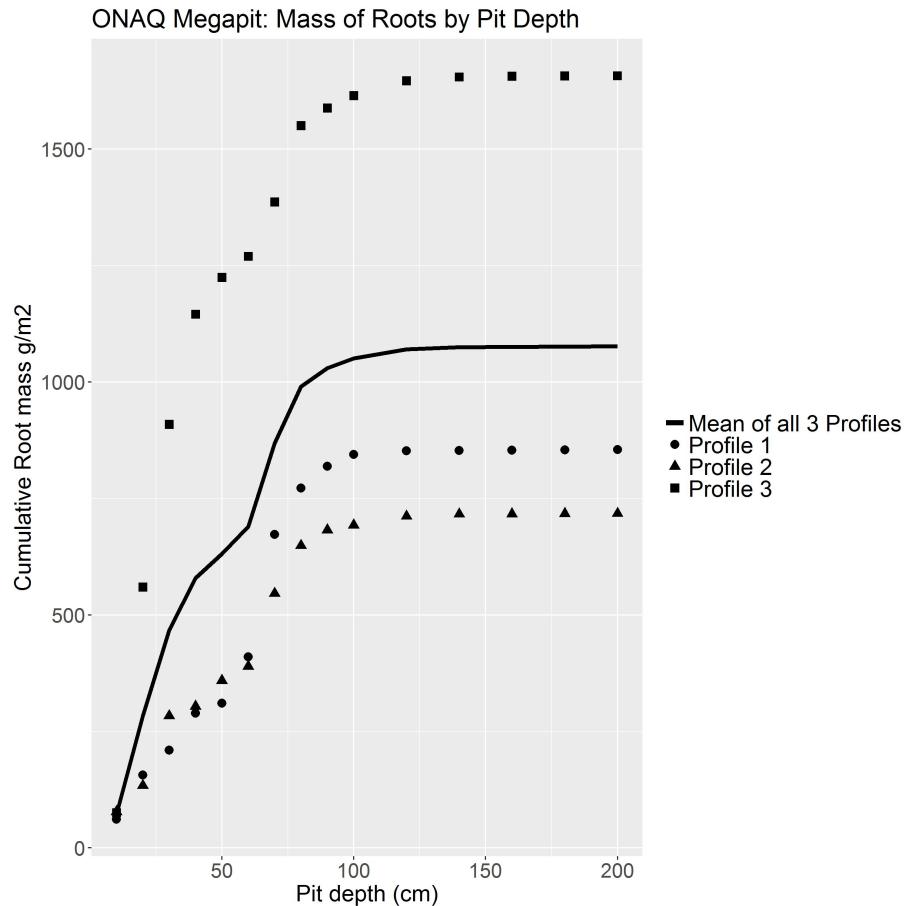


Figure 7: Cumulative root mass by pit depth at ONAQ.

Table 9: Fine root biomass sampling summary data at ONAQ.

Total Pit Depth (cm)	200
Total Mean Cumulative Mass at 30cm (g per m ²)	467.28
Total Mean Cumulative Mass at 100cm (g per m ²)	1050.65
Total Mean Cumulative Mass (g per m ²)	1076.57

4.4 Plant Characterization and Phenology Species Selection

4.4.1 Site-Specific Methods

Plant characterization data were collected by an external contractor during June of 2013. Plant characterization data informs sampling procedures for plant phenology and plant productivity protocols.

Title: TOS Site Characterization Report: Domain 15		Date: 11/20/2018
NEON Doc. #: NEON.DOC.003898	Author: R.Krauss	Revision: B

The overall ranking (“Rank” in the table below) was calculated based on three separate measurements. Overall ranking weights are influenced by the number of species within each grouping.

1. Mean percent cover values were calculated based on species specific cover estimation for all plant species under 3m tall in eight 1m by 1m subplots per plot; see the TOS Protocol and Procedure: Plant Diversity Sampling (RD[09]) for more information.
2. Mean canopy area values were calculated based on all species specific shrub canopy diameter measurements within the entire plot or subplot; see the TOS Protocol and Procedure: Measurement of Vegetation Structure (RD[10]) for more information.
3. Mean ABH (area at breast height) measurements were calculated based on diameter at breast height measurements for all woody vegetation with a diameter greater than 1cm at 130cm height within the entire plot or subplot; see the TOS Protocol and Procedure: Measurement of Vegetation Structure (RD[10]) for more information.

The standard field methods and ranking calculations are further outlined in TOS Site Characterization Methods (RD[6]). For more information on this protocol and data product numbers see Appendix A.

4.4.2 Results

Table 10: Site plant characterization and phenology species summary at ONAQ.

Taxon ID	Scientific Name	Rank	Mean Percent Cover	Mean Canopy Area (m ² per m ²)	Mean ABH (cm ² per m ²)
ARTR2	<i>Artemisia tridentata</i> Nutt.	1	57	NA	NA
ERCI6	<i>Erodium cicutarium</i> (L.) L'Hér. ex Aiton	10	<1	NA	NA
SPCO	<i>Sphaeralcea coccinea</i> (Nutt.) Rydb.	11	<1	NA	NA
SPPA2	<i>Sphaeralcea parvifolia</i> A. Nelson	12	<1	NA	NA
PASM	<i>Pascopyrum smithii</i> (Rydb.) Á. Löve	13	<1	NA	NA
ERNA10	<i>Ericameria nauseosa</i> (Pall. ex Pursh) G.L. Nesom & Baird	14	<1	NA	NA
ATRIP	<i>Atriplex</i> sp.	15	<1	NA	NA
DESO2	<i>Descurainia sophia</i> (L.) Webb ex Prantl	15	<1	NA	NA
MEAL6	<i>Mentzelia albicaulis</i> (Hook.) Torr. & A. Gray	15	<1	NA	NA
POSE	<i>Poa secunda</i> J. Presl	15	<1	NA	NA

Title: TOS Site Characterization Report: Domain 15				Date: 11/20/2018
NEON Doc. #: NEON.DOC.003898		Author: R.Krauss		Revision: B

Taxon ID	Scientific Name	Rank	Mean Percent Cover	Mean Canopy Area (m ² per m ²)	Mean ABH (cm ² per m ²)
CETE5	<i>Ceratocephala testiculata</i> (Crantz) Roth	2	11	NA	NA
BRTE	<i>Bromus tectorum</i> L.	3	4	NA	NA
ELEL5	<i>Elymus elymoides</i> (Raf.) Swezey	4	2	NA	NA
ALDE	<i>Alyssum desertorum</i> Stapf	5	1	NA	NA
ACHY	<i>Achnatherum hymenoides</i> (Roem. & Schult.) Barkworth	6	<1	NA	NA
OPPO	<i>Opuntia polyacantha</i> Haw.	7	<1	NA	NA
GUSA2	<i>Gutierrezia sarothrae</i> (Pursh) Britton & Rusby	8	<1	NA	NA
SIAL2	<i>Sisymbrium altissimum</i> L.	9	<1	NA	NA

Note: Taxon IDs and scientific names are based on the USDA Plants database (plants.usda.gov). The two main species lumped within the *Atriplex* sp. group are *Atriplex confertifolia* and *Atriplex canescens*.

Table 11: Per plot breakdown of species richness, diversity, and herbaceous cover at ONAQ.

Plot ID	Species Richness	Shannon Diversity Index	Percent Total Herbaceous Cover
ONAQ_042	8	1.63	55
ONAQ_044	8	1.68	69
ONAQ_046	9	1.65	78
ONAQ_047	6	1.44	45
ONAQ_048	9	1.5	65
ONAQ_050	11	1.84	106
ONAQ_051	10	1.39	62
ONAQ_052	8	1.88	29
ONAQ_053	10	1.43	78
ONAQ_055	8	1.6	50
ONAQ_057	10	1.75	86
ONAQ_058	9	1.52	48
ONAQ_059	9	1.72	84
ONAQ_060	10	1.7	76
ONAQ_061	8	1.66	69

Title: TOS Site Characterization Report: Domain 15			Date: 11/20/2018
NEON Doc. #: NEON.DOC.003898	Author: R.Krauss		Revision: B

Plot ID	Species Richness	Shannon Diversity Index	Percent Total Herbaceous Cover
ONAQ_063	9	1.26	57
ONAQ_064	10	1.88	92
ONAQ_066	8	1.65	116
ONAQ_067	8	1.36	69
ONAQ_069	8	1.62	51

Note: Percent herbaceous cover was measured by species and then added together to calculate the percent total herbaceous cover for each plot.

Bryophyte percent cover data were used to determine which sites qualify for implementation of the Bryophyte Productivity protocol. No bryophyte cover was recorded in ONAQ Tower Base Plots. However, bryophyte productivity sampling was discontinued in 2018 and NEON no longer implements this protocol.

4.5 Beetles

4.5.1 Site-Specific Methods

No beetle site characterization was conducted at ONAQ. For more information on this protocol and data product numbers see Appendix A.

4.6 Mosquitoes

4.6.1 Site-Specific Methods

Mosquito site characterization was conducted in May of 2013 by NEON staff following the standard methods outlined in TOS Site Characterization Methods (RD[6]) to test protocol methods and start site level species lists. No pathogen testing was performed. All samples were pooled before being sent for identification. For more information on this protocol and data product numbers see Appendix A.

4.6.2 Results

Table 12: Mosquito identification results at ONAQ.

Sample ID	Scientific Name	Count	Sex
ONAQ.May2013.SC.1	<i>Aedes dorsalis</i>	1	female
ONAQ.May2013.SC.1	<i>Aedes flavesrens</i>	1	female
ONAQ.May2013.SC.1	<i>Aedes idahoensis</i>	14	female
ONAQ.May2013.SC.1	<i>Aedes niphadopsis</i>	464	female

Title: TOS Site Characterization Report: Domain 15			Date: 11/20/2018
NEON Doc. #: NEON.DOC.003898	Author: R.Krauss		Revision: B

Sample ID	Scientific Name	Count	Sex
ONAQ.May2013.SC.1	<i>Aedes</i> spp.	198	female
ONAQ.May2013.SC.1	<i>Aedes</i> spp.	3	male
ONAQ.May2013.SC.1	<i>Culex tarsalis</i>	29	female
ONAQ.May2013.SC.1	<i>Culiseta inornata</i>	44	female
ONAQ.May2013.SC.1	<i>Culiseta</i> spp.	5	female
ONAQ.May2013.SC.1	<i>Culiseta</i> spp.	1	male

4.7 Ticks

4.7.1 Site-Specific Methods

No tick site characterization was conducted at ONAQ. For more information on this protocol and data product numbers see Appendix A.

4.8 Species Reference Lists

A review of the literature for taxonomic lists of interest for each site was conducted prior to field work. In the case of vertebrates that NEON may capture (e.g., reptiles, amphibians, small mammals), these lists were often required to secure permits. Key references identified in this effort are listed below. Species lists and associated references for small mammals and breeding landbirds can be found in the appendices of the respective protocols (RD[07], RD[08]).

Amphibians: State of Utah Natural Resources Division of Wildlife Resources. 2017. <http://dwrcdc.nr.utah.gov/rsgis2/search/SearchSelection.asp?Group=AMPHIBIA&Species=VERT>

Bousquet, Y. 2012. Catalogue of Geadephaga (Coleoptera, Adephaga) of America, north of Mexico. ZooKeys, (245), 1-1722.

Centers for Disease Control and Prevention. (2015). *Geographic distribution of ticks that bite humans*. Retrieved from http://www.cdc.gov/ticks/geographic_distribution.html

Darsie Jr., R. F., and R. A. Ward. 2005. Identification and geographical distribution of the mosquitoes of North America, North of Mexico. University Press of Florida, Gainesville.

Reptiles: State of Utah Natural Resources Division of Wildlife Resources. 2017. <http://dwrcdc.nr.utah.gov/rsgis2/search/SearchSelection.asp?Group=REPTILIA&Species=VERT>

State of Utah, Department of Natural Resources, Division of Wildlife Resources, 1998. Inventory of Sensitive Species and Ecosystems in Utah; Endemic and Rare Plants of Utah: An Overview of their Distribution and Status

<i>Title:</i> TOS Site Characterization Report: Domain 15		<i>Date:</i> 11/20/2018
NEON Doc. #: NEON.DOC.003898	<i>Author:</i> R.Krauss	<i>Revision:</i> B

5 REFERENCES

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- The Great Basin and the Columbia Plateau. USGS Great Basin Information. November 1, 2016. <https://greatbasin.wr.usgs.gov/>.
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- McIver, J.D., M. Brunson, S. Bunting, J. Chambers, N. Devoe, P. Doescher, J. Grace, D. Johnson, S. Knick, R. Miller, M. Pellatt, F. Pierson, D. Pyke, K. Rollins, B. Roundy, E. Schupp, R. Tausch, and D. Turner. 2010 The Sagebrush Steppe Treatment Evaluation Project (SageSTEP): A Test of State-and Transition Theory. USDA Forest Service General Technical Report RMRS-GTR-237, Fort Collins, CO: Rocky Mountain Research Station. 16 p.
- Sagebrush Steppe SageSTEP Treatment Evaluation Projection. 2013. <http://www.sagestep.org/locations/onaqui.html>
- USDA, NRCS. 2016. The PLANTS Database (<http://plants.usda.gov>, 1 August 2016). National Plant Data Team, Greensboro, NC 27401-4901 USA.

6 APPENDIX A: DATA PRODUCT NUMBERS

For more information on the sampling protocols and the latest observatory data visit <http://data.neonscience.org/data-product-catalog> and search by name or code number.

Table 13: NEON data product names and descriptions.

Name	Description	Identification Code
Root sampling (megapit)	Fine root biomass in 10cm increments (first 1m depth) and 20cm increments (from 1m to 2m depth) from soil pit sampling	NEON.DOM.SITE.DP1.10066
Soil physical properties (Megapit)	Soil taxonomy, horizon names, horizon depths, as well as soil bulk density, porosity, texture (sand, silt, and clay content) in the <= 2 mm soil fraction for each soil horizon. Data were derived from a sampling location expected to be representative of the area where the Instrumented Soil Plots per site are located and were collected once during site construction. Also see distributed soil data products.	NEON.DOM.SITE.DP1.00096

Title: TOS Site Characterization Report: Domain 15		Date: 11/20/2018
NEON Doc. #: NEON.DOC.003898	Author: R.Krauss	Revision: B

Name	Description	Identification Code
Soil chemical properties (Megapit)	Total content of a range of chemical elements, pH, and electrical conductivity in the <= 2 mm soil fraction for each soil horizon. Data were derived from a sampling location expected to be representative of the area where the Instrumented Soil Plots per site are located and were collected once during site construction. Also see distributed soil data products.	NEON.DOM.SITE.DP1.00097
Woody plant vegetation structure	Structure measurements, including height, canopy diameter, and stem diameter, as well as mapped position of individual woody plants	NEON.DOM.SITE.DP1.10098
Plant presence and percent cover	Plant species presence as observed in multi-scale plots: species and associated percent cover at 1-m ² and plant species presence at 10-m ² , 100-m ² and 400-m ²	NEON.DOM.SITE.DP1.10058
Plant phenology observations	Phenophase status and intensity of tagged plants	NEON.DOM.SITE.DP1.10055
Plant foliar stable isotopes	Field collection metadata describing the sampling of sun-lit canopy foliar tissues for stable isotope compositions. Also includes raw data returned from the laboratory.	NEON.DOM.SITE.DP1.10053
Plant foliar physical and chemical properties	Plant sun-lit canopy foliar physical (e.g., leaf mass per area) and chemical properties reported at the level of the individual.	NEON.DOM.SITE.DP1.10026
Non-herbaceous perennial vegetation structure	Field measurements of individual non-herbaceous perennial plants (e.g. cacti, ferns)	NEON.DOM.SITE.DP1.10045.
Ground beetles sampled from pitfall traps	Taxonomically identified ground beetles and the plots and times from which they were collected.	NEON.DOM.SITE.DP1.10022
Ground beetle sequences DNA barcode	CO1 DNA sequences from select ground beetles	NEON.DOM.SITE.DP1.10020
Mosquitoes sampled from CO2traps	Taxonomically identified mosquitoes and the plots and times from which they were collected	NEON.DOM.SITE.DP1.10043
Mosquito-borne pathogen status	Presence/absence of a pathogen in a single mosquito sample (pool)	NEON.DOM.SITE.DP1.10041
Mosquito sequences DNA barcode	CO1 DNA sequences from select mosquitoes	NEON.DOM.SITE.DP1.10038
Ticks sampled using drag cloths	Abundance and density of ticks collected by drag and/or flag sampling (by species and/or lifestage)	NEON.DOM.SITE.DP1.10093
Tick-borne pathogen status	Presence/absence of a pathogen in each single tick sample	NEON.DOM.SITE.DP1.10092