

Walloon Lake Watershed Invasive Species Prioritization

Developed from CAKE Cooperative Invasive Species Management Area priorities

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Priority Species

1. Knotweeds (Giant, Japanese, Bohemian) - *Polygonum sachalinensis*, *P. cuspidatum*
2. Black/pale swallowwort - *Cynanchum louisiae*, *C. rossicum*
3. Oriental bittersweet - *Celastrus orbiculatus*
4. Invasive *Phragmites* - *Phragmites australis*
6. Invasive buckthorns - *Rhamnus cathartica*, *Frangula alnus*
7. Russian/Autumn olive - *Elaeagnus angustifolia*, *E. umbellata*
8. Barberries - *Berberis thunbergii*, *B. vulgaris*, *Berberis repens*/Mahonia aquifolium
9. Garlic mustard - *Alliaria petiolaria*
10. Purple loosestrife - *Lythrum salicarium*

Others considered:

Invasive honeysuckles - (*Lonicera maackii*, *L. morrowii*, *L. tatarica*, *L. xylosteum*, *L. x bella*)

Invasive spurges - (*Euphorbia esula*, *E. cyparissias*)

European Swamp Thistle - (*Cirsium palastre*)

EDRR Plant List (Species not currently found in our area)

1. European frogbit (*Hydrocharis morsus-ranae*)
2. Flowering rush (*Butomus umbellatus*)
3. Giant hogweed (*Heracleum mantegazzianum*)
4. Kudzu (*Pueraria montana* var. *lobata*)
5. Japanese honeysuckle (*Lonicera japonica*)
6. Japanese stiltgrass (*Microstegium vimineum*)
7. Spiny naiad (*Najas marina*)
8. Starry stonewort (*Nitellopsis obtusa*)
9. Hydrilla (*Hydrilla verticillata*)
10. Lyme grass (*Leymus arinareus*)

Knotweeds

(Giant, Japanese, Bohemian)



Japanese knotweed invasion!



Knotweed leaves and flowers

Distribution and Overview

Japanese knotweed is a non-native invasive plant that was introduced from Asia as an ornamental plant. Knotweed spreads vegetatively by rhizomes and also sprouts from fragments of root and stem material, which are dispersed by water, equipment or in ll. It forms fertile hybrids with giant knotweed (*Polygonum sachalinense*). Some populations, particularly hybrids, produce fertile seed. It looks like bamboo to many homeowners.

Ecological Threat

Knotweed forms dense monocultures, with a thick layer of accumulated leaf and brous stem litter. It crowds out native species through namely light limitation, altering nutrient cycling in soil, and allelopathy—the ability to suppress growth of a potential plant competitor by releasing toxic or inhibiting chemicals.

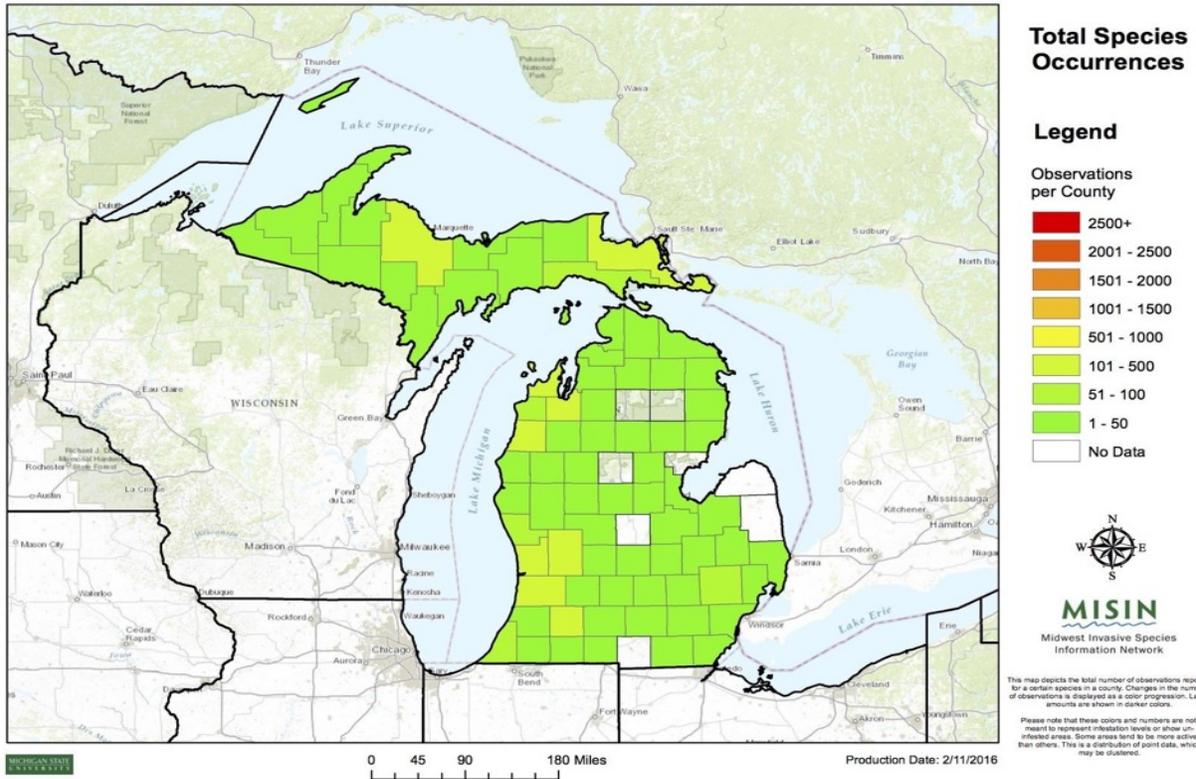
Knotweed can contribute both to stream bank erosion and to flooding, when its large, fibbrous stems wash into the water during periods of peak ow. Its rhizomes and shoots can penetrate asphalt and cracks in concrete. It is most aggressive on sites with natural or human disturbance; stream and riverbanks, roadsides and construction sites.

Where in WLTC protected lands

There are no mapped or reported populations on WLTC protected lands. However, we remain diligent and monitor for this each year along stream corridors and woodland edges. It is quite prolific along the Bear River, and in Melrose Township at the village park. We continue to survey and report any sightings to MISIN and the Cooperative Invasive Species Management Area, CAKE.

Michigan: Japanese knotweed (*Fallopia japonica*)

2016



European Swamp Thistle

Cirsium palustre



Single plant detail



Swamp thistle in wetland seep - colonizing

Distribution and Overview

European Swamp thistle is widely distributed across the UP and now moving into northern lower peninsula. In Emmet and Charlevoix Counties, reports are increasing and more data needs to be collected.

Herbaceous biennial or monocarpic perennial. First year plants overwinter in rosette stage; flowering stems are 4-5' tall, erect, thick, sometimes reddish in color, branched at the top and bristling with spiny wings aligned with the stem. Much of plant covered in long, sticky hairs.

Ecological Threat

Prefers moist, acidic soils and is somewhat shade tolerant. Found along roadsides, old fields, in wetlands, forest edges, beach and dune areas.

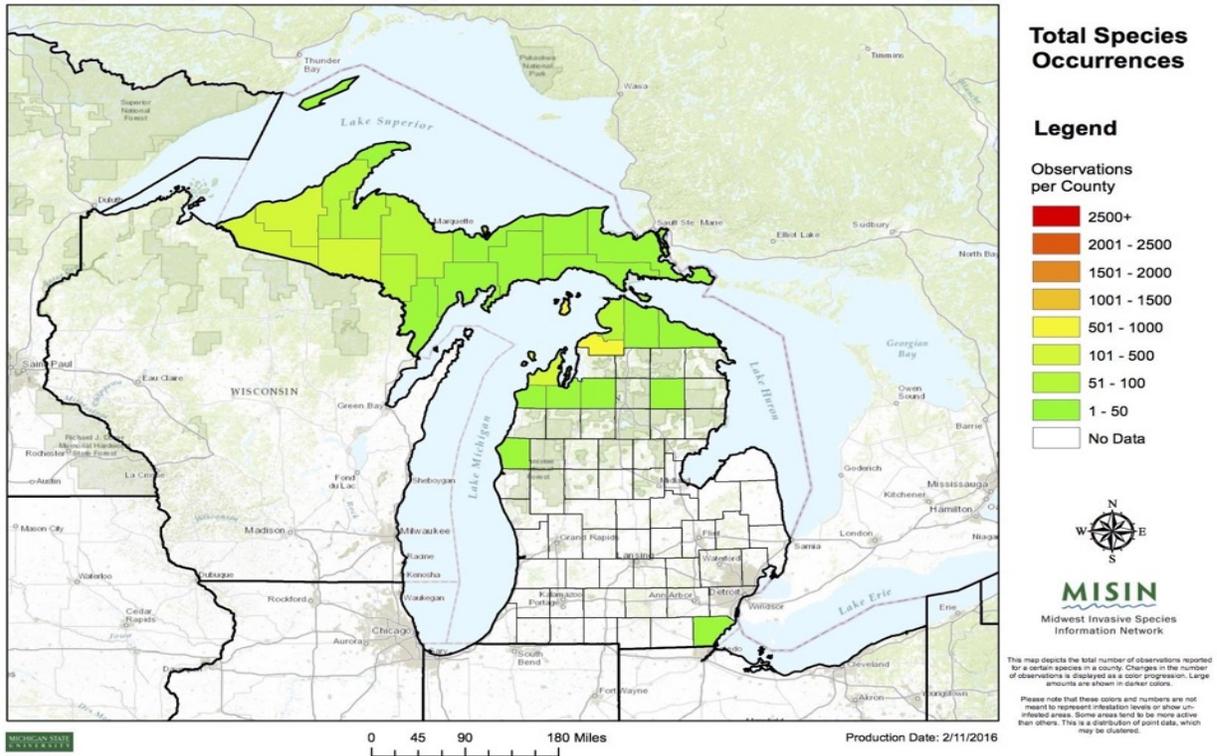
Once introduced, this plant can aggressively colonize natural areas, decrease biodiversity and compromise the ecological integrity of an area. May also jeopardize hydrology, as colonization along streams and in wetland areas is common.

Where in WLTC protected lands

Mapped and reported populations: Postle Farm Preserve, Fields Preserve, Indian Garden Nature Area. WLTC will monitor populations annually and begin treatment. Treatments on the Fields Preserve and Postle are planned for 2016. Treatment through foliar spraying in the early summer before flowering is most effective.

Michigan: European swamp thistle (*Cirsium palustre*)

2016



Black Swallow-Wort

Vincetoxicum nigrum



swallow-wort vines with pods



swallow-wort vine with flowers

Distribution and Overview

Black swallow-wort is a native to Europe and is a garden/landscape escapee. Often referred to as dog strangling vine, this plant is a vining plant with oblong leaves. It develops long pods, looking similar to milkweed pods. The leaves emerge in May, and purple flowers develop at the base of the leaves. Pods mature and burst open, spreading millions of seeds via wind, animals, and hikers.

In Michigan, localized appearances of black swallow-wort occur mostly in SE Michigan and in Emmet County.

Ecological Threat

Black swallow-wort can colonize two ways: wind borne seeds which can travel for miles, or by rhizomes (underground stems) that sprout into new plant clumps and form extensive patches.

Extensive patches of swallow-wort grow over other, often native, vegetation, blocking light and creating tangled thickets.

Since this plant is a member of the milkweed family, Monarch butterflies often lay their eggs on swallow-wort seed pods. But swallow-wort is poisonous to monarchs and its larvae die either when they feed or by starving to death.

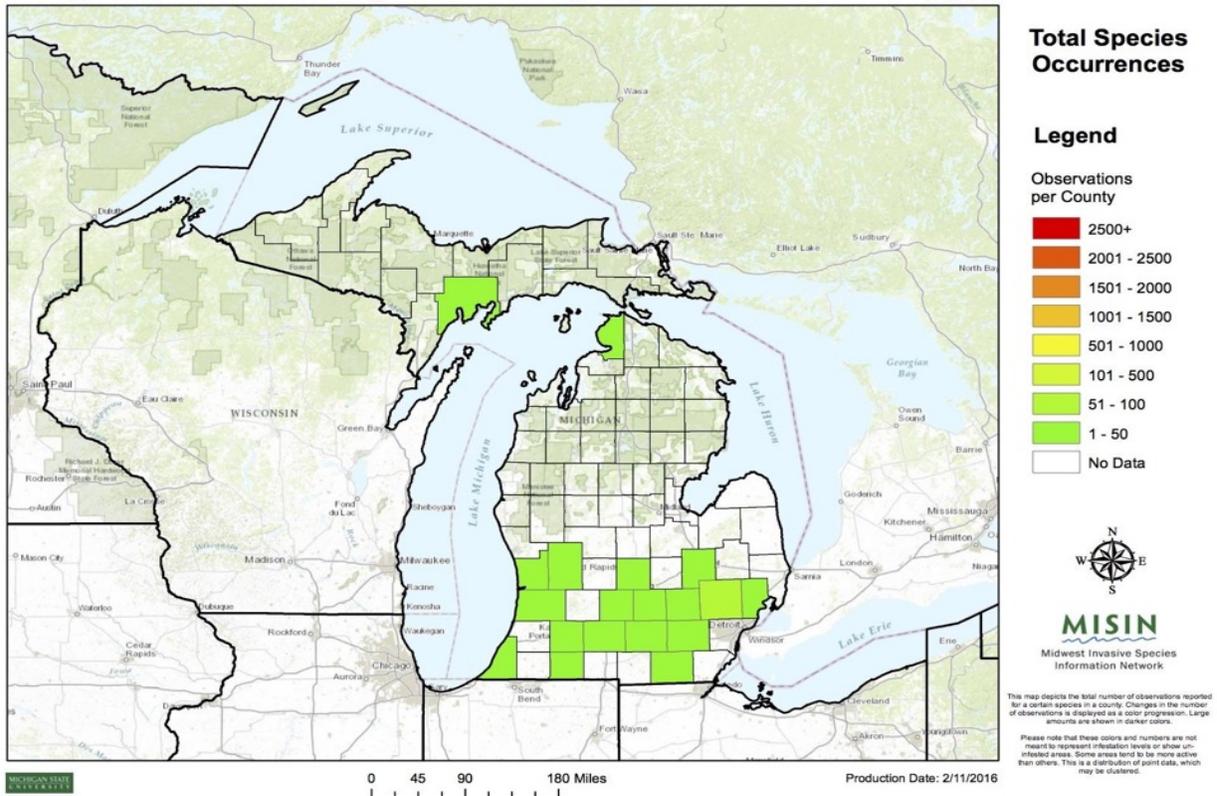
Old field habitats of goldenrod and grasses can be replaced almost exclusively by swallow-wort, completely changing their physical structure, possibly impacting nesting birds in the process.

Where in WLTC protected lands

There are no mapped or reported populations on WLTC protected lands. However, we remain diligent and monitor for this each year in our old field habitat and woodland edges. It is quite prolific along the Bear River Recreation Area pathway and in the City of Petoskey. Black swallow-wort surveys will happen annually, and reporting populations continues through CAKE and MISIN.

Michigan: Black swallow-wort (*Vincetoxicum nigrum*)

2016



Japanese Barberry

Berberis thunbergii



Barberry invasion along stream in woods



close-up leaves and red berries

Distribution and Overview

Japanese barberry occurs and is reported to be invasive throughout the northeastern U.S. from Maine to North Carolina and west to Wisconsin and Missouri. It grows well in full sun to deep shade and forms dense stands in closed canopy forests, open woodlands, wetlands, fields and other areas.

Japanese barberry was introduced to the United States as an ornamental in 1875. Seeds were sent from Russia to the Arnold Arboretum in Boston, Massachusetts. It was widely promoted as a desirable alternative to another invasive barberry. This garden escapee now impacts natural areas quite commonly.

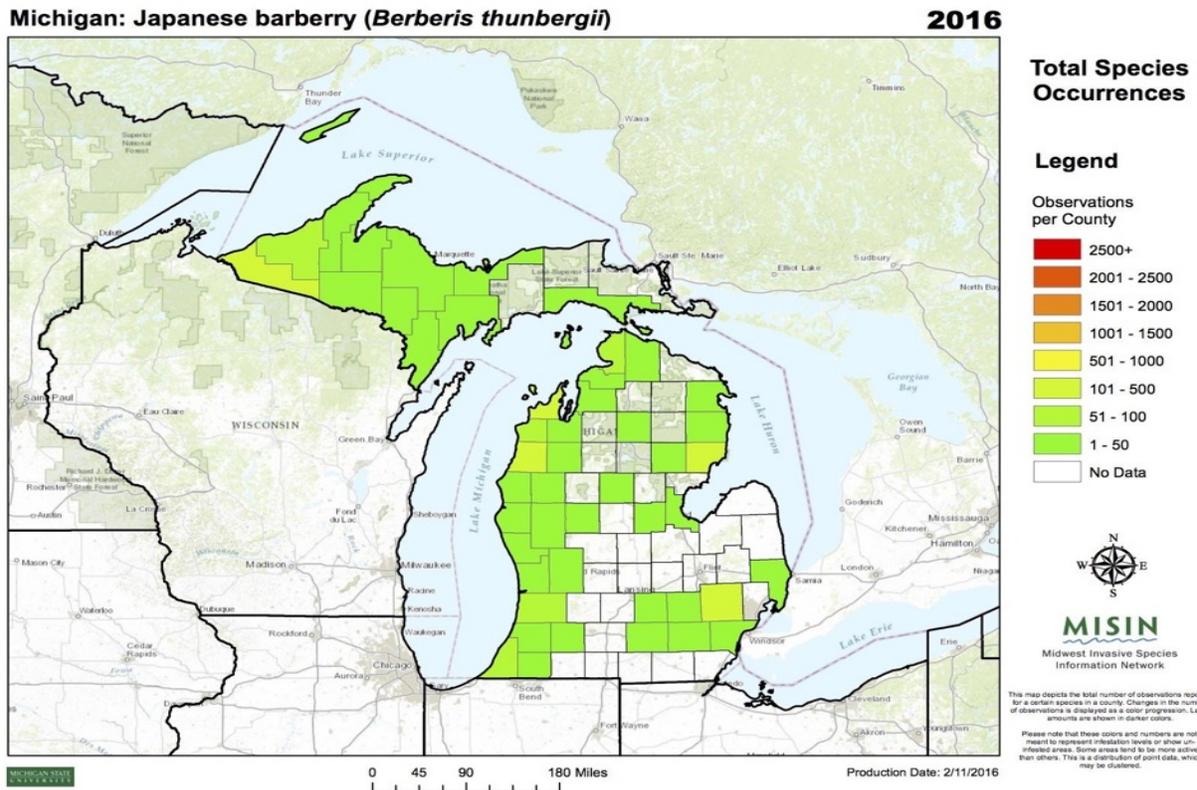
Ecological Threat

Where it is well established, barberry displaces many native herbaceous and woody plants. In large infestations, its leaf litter causes changes in the chemistry of the soil, making it more basic.

Recently, barberry has been implicated in the spread of Lyme disease. Researchers have noted higher densities of adult deer ticks and white-footed deer mice under barberry than under native shrubs. Deer mice, the larval host, have higher levels of larval tick infestation and more of the adult ticks are infected with Lyme disease. When barberry is controlled, fewer mice and ticks are present and infection rates drop.

Where in WLTC protected lands

Staff have mapped and controlled populations of barberry in: Postle Farm Preserve, Fields Preserve, Indian Garden Nature Area, and Wildwood Preserve. Also mapped populations in Bois Le Duc Preserve, Fish-Worcester Nature Area, and North Shore Nature Area. Control of Japanese barberry is done through pulling young shrubs from the ground or cut/dab method with herbicide in the late summer/early fall.



Garlic Mustard

Alliaria petiolata



Garlic Mustard patch - covering forest floor



Garlic Mustard leaves and flower

Distribution and Overview

Garlic mustard was first recorded in the United States around 1868, from Long Island, New York, and was likely introduced by settlers for food and medicinal purposes. Garlic mustard has been reported to be invasive in natural areas throughout the northeastern U.S. and in scattered localities in the Midwest, Southeast, western states, and Alaska. It occurs in moist to dry forest habitats, forest edges, floodplains, and along roadsides and disturbed lands and is not tolerant of highly acidic soils. White-tailed deer assist in its spread by eating native plant species that they prefer and are adapted to eat, leaving the garlic mustard behind. Garlic mustard's small seeds get caught in animal's fur and in hiker's boot treads.

It is edible and many people use it in cooking because of its mild onion/garlic flavor. Heather prefers it as a pesto.

Ecological Threat

Garlic mustard has displaced vast areas occupied by native spring wildflowers like spring beauty, wild ginger, bloodroot, trilliums and toothworts. Three native butterfly species, the West Virginia white (*Pieris virginiensis*), mustard white butterfly (*Pieris oleracea*), and the falcate orange-tip (*Anthocharis midea annicka*), are especially impacted when garlic mustard displaces toothworts, its host plants. Chemicals in garlic mustard are toxic to the larvae of the native butterflies. Other chemicals have been found to affect mycorrhizae fungi associated with native trees, resulting in suppression of native tree seedling growth.

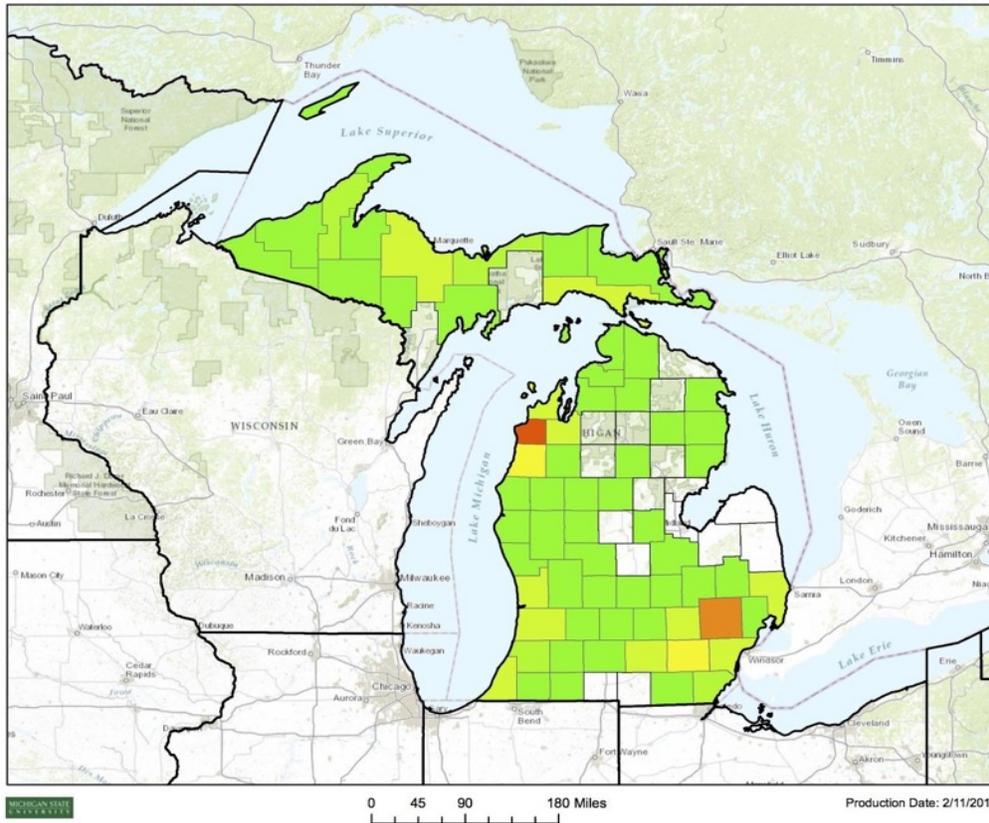
See Also: Garlic Mustard Challenge by the Stewardship Network! Fun in controlling invasives!

Where in WLTC protected lands

Staff have mapped populations of garlic mustard in: Fish-Worcester Nature Area, and North Shore Nature Area. Spring and fall monitoring is especially important in combating the spread of garlic mustard. Garlic mustard is easily hand-pulled in the spring, and may also be controlled later in the season with foliar sprays. WLTC will take part in the Garlic Mustard Challenge with CISMA partners, planning volunteer workdays and counting bags of garlic mustard removed from natural areas.

Michigan: Garlic mustard (*Alliaria petiolata*)

2016



Total Species Occurrences

Legend

Observations per County

- 2500+
- 2001 - 2500
- 1501 - 2000
- 1001 - 1500
- 501 - 1000
- 101 - 500
- 51 - 100
- 1 - 50
- No Data



MISIN

Midwest Invasive Species Information Network

This map depicts the total number of observations reported for a certain species in a county. Changes in the number of observations is displayed as a color progression. Large amounts are shown in darker colors.

Please note that these colors and numbers are not meant to represent infestation levels or show uninfested areas. Some areas tend to be more active than others. This is a distribution of point data, which may be clustered.

0 45 90 180 Miles

Production Date: 2/11/2016