# Existing Condition Report on the Toe of Katherine Street Peninsula

*Introduction* - The Toe of Katherine Street Peninsula (TKSP) is located within the Lower Buffalo River (LBR) Area of Concern (AOC) southeast of the location where Katherine Street dead-ends prior to reaching the Buffalo River. The peninsula is comprised of multiple parcels/owners and zoned as industrial. The City of Buffalo owns TKSP, which is not accessible by land without neighboring landowner permission. Access for the existing conditions assessment was by river/boat. A rapid assessment was conducted on April 22, 2016.

*Current Land Use Condition* - The site is currently not in active use. Primarily, the condition is "naturalized" except for a maintained powerline Right of Way that bisects the TKSP (Figure 1). Apart from the ROW maintenance, no formal or approved activities occur on the TKSP. Please see the vegetation description section for details on the naturalized condition.

*Soils* - Referring to the USDA Web Soil Series custom site report (Appendix I), the soils are all considered "Urban Land". This is non-native fill atop (likely) historic floodplain soils which are typically inceptisols with episodic buried horizons. The highly eroded bank slopes reveal evidence of non-natural fill material, such as chips of pottery, various coins, marble, glass, and other manufactured materials (Figure 2).

*Hydrology* - The site is graded and compacted with fill soil material. No wetlands currently occur within the site. The river margins support sparse hydrophytic vegetation (Figure 3). Additionally, recent restoration of the inshore locations along the TKSP will (theoretically) provide suitable habitat and plant material to develop an in-river emergent marsh and submerged aquatic-vegetation bed. River level varies greatly via storm events, spring snowmelt, and Seiche effect.

*Vegetation* - The site is dominated by invasive and non-native plants. The tree canopy is comprised of two, non-native species, crack willow (*Salix fragilis*) (Figure 4) and box elder (*Acer negundo*). Shrub understory is dominated by Japanese knotweed (*Fallopia japonica*) (Figure 5). Understory is more diverse, but also dominated by invasive plant species, primarily mugwort (*Artemesia vulgaris*), Canada thistle (*Cirsium vulgare*), mullein (*Verbascum thapsus*), and garlic mustard (*Alliaria petiolata*). Few native plants were observed, including a cinquefoil (*Potentilla* sp.) and Canada goldenrod (*Solidago canadensis*). The powerline ROW and a vehicle turn-around were recently mowed. Re-sprouting knotweed dominate these sections. A full plant list can be found in Appendix II

*Wildlife* - A rapid assessment of the on-site fauna resulted in the following observations (A full wildlife list can be observed in Appendix III):

- 4 mammal species – white tailed deer (*Odocoileus virginianus*) (Figure 6), striped skunk (*Mephitis mephitis*), gray squirrel (*Sciurus carolinensis*) and American beaver (*Castor canadensis*)
- 36 bird species (14 of which are probable breeders on the site)

- 4 reptiles - comprising a breeding population of shorthead garter snakes (*Thamnophis brachystoma*) (Figures 7&8), eastern garter snake (*T. s. sirtalis*), and observed northern redbelly snake (*Storeria o. occipitomaculata*) and common snapping turtle (*Chelydra serpentina*)
- 2 amphibian species - northern green frog (*Lithobates clamitans melanota*) and American toad (*Anaxyrus americanus*)
- Various generalist invertebrates, such as cabbage white (*Pieris rapae*), eastern tailed blue (*Cupido comyntas*), flatworms, centipedes, springtails, freshwater snails, and pill bug (*Armadillidium vulgare*).
- Unionids include 2-3 native species (still determining species) and the highly invasive zebra mussel (*Dreissena polymorpha*)(Figure 9).

*Ecological Notes* - From a functional perspective, the site is currently a poor-performing riparian woodland and river shoreline. All vegetative strata are simplified by invasive plant species. The soil is compacted and non-natural (nutrients and contaminants unknown). Erosion is evident along the river shorelines, but nothing out of the ordinary. Streams and rivers are dynamic systems that inherently accrue and waste shorelines as they meander, often resulting in eroded banks (which, in turn, support a variety of co-evolved flora and fauna). This is one of the few natural shorelines/riparian woodlands remaining in the LBR AOC, making it imperative to stabilize and protect the shore from further sediment loss. There are obviously water quality benefits to stabilizing the shoreline as well.

An introduced (but naturalized) population of shorthead garter snakes is present onsite. The maintenance of an open meadow with coarse woody debris and a diversity of native plants (thus, attracting a wider diversity of native insects and thereby boosting the trophic web) will ensure sustained occupation by this odd yet unique natural heritage feature. The presence of true frogs and toads on the site warrants a closer look at the lack of wetlands in this peninsula/AOC.

*Recommendations* – Considering the BUIs impairing the LBR and the performance of existing natural areas, it is clear that the TKSP is providing a great opportunity to improve critical wildlife habitat and, presumably, wildlife populations by creating wetland habitat and improving the functionality of the riparian woodland. The re-colonization of spiny softshell (*Apalone spinifera*) to the LBR warrants close attention and promotion of critical habitat wherever appropriate. The sites' south-facing shoreline is a perfect location to create critical nesting habitat for this turtle species (and other river-associated turtle species).

Overall, the following actions are recommended to maximize the potential to delist noted BUIs for the LBR AOC:

- eradication of invasive plant species (and long-term ,monitoring/maintenance plan),

- increasing the diversity of native plants in all terrestrial strata via seeding and planting,
- the creation of a wetland habitat feature to support breeding amphibians,
- and creation of a critical nesting zone for turtles, especially spiny softshell
- exclusion of deer in the restoration zone will be critical to the successful establishment of native plantings on the site.

**Figure 1.** ROW on TKSP.

**Figure 2.** Shoreline with bricks, glass, pottery, etc.

**Figure 3.** Shoreline showing periodically inundated wetland zone.

**Figure 4.** Crack willows providing a tree canopy on site.


**Figure 5.** Knotweed monoculture dominating the understory on site.

**Figure 6.** A leucistic white-tailed deer.

**Figure 7.** Adult shorthead garter snake (Thamnophis brachystoma) found on site.

**Figure 8.** A neonate shorthead garter snake showing its umbillical scar, suggesting it was birthed and/or overwintered in the immediate vicinity.

**Figure 9.** Native Unionidae (freshwater mussel) species whose shells were located on the shoreline on site.