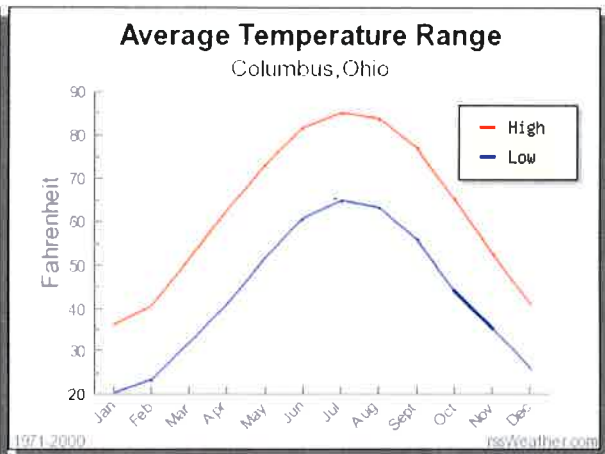
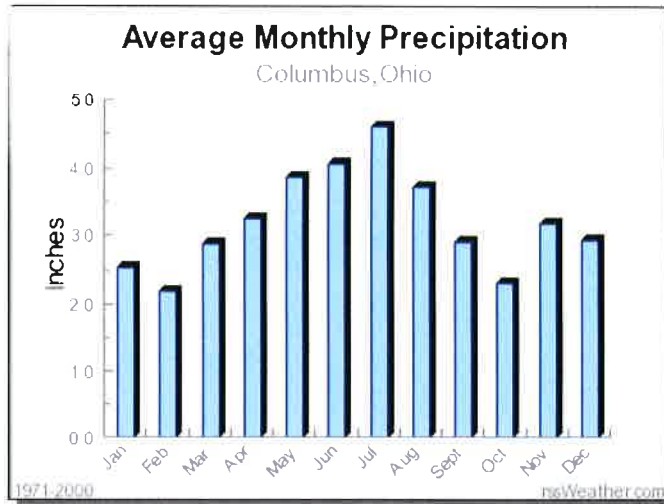




# Ecological impacts of Proposed redevelopment project

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Environmental practicum

# OHIO WEATHER AND CLIMATE



The weather and climate are crucial to understanding the ecological impacts of brownfields and redevelopment. Climate and weather patterns allow certain habitats and wildlife to thrive.



Ohio has a temperate climate and experiences all four seasons. It has an average precipitation of roughly 40 inches, however that number is rising. This affects the site, as severe flooding can spread contamination from brownfields. It can also affect what kind of wildlife is in the area and how the wildlife will act.



Severe rain and flooding can spread contamination from brownfields, which can lead to contaminating nearby watersheds and storm water, which can be devastating to local wildlife and habitats.

# SPECIES OF LICKING COUNTY OHIO

## LICKING COUNTY

State Status	Federal Status	County	Category	Species	CommonName	Sensitive Species	Most Recent Record	FWS
Endangered	Species of Concern	Licking	Amphibian - Salamander	<i>Cryptobranchius alleganiensis alleganiensis</i>	Eastern Hellbender	Yes	1988	
Endangered		Licking	Insect - butterfly	<i>Speyeria idalia</i>	Regal Fritillary	No	1946	
Endangered		Licking	Invert - fw bivalve	<i>Fusconaia maculata maculata</i>	Long-sock	No	1973	
Endangered	Endangered	Licking	Invert - fw bivalve	<i>Pleurobema cyphus</i>	Shaeppnose	No	1973	
Endangered	Endangered	Licking	Mammal	<i>Myotis sodalis</i>	Indiana Myotis	Yes		
Endangered		Licking	Mammal	<i>Ursus americanus</i>	Black Bear	No	1097	
Endangered	Candidate	Licking	Reptile - Snake	<i>Statrurus catenatus catenatus</i>	Eastern Massasauga	Yes		
Threatened		Licking	Fish	<i>Erimyzon succetta</i>	Lake Chubucker	No	2012	
Threatened		Licking	Invert - fw bivalve	<i>Ligumia recia</i>	Black Sandshell	No	1975	
Threatened		Licking	Invert - fw bivalve	<i>Truncella dorsalisformis</i>	Fawnsfoot	No	1998	
Threatened		Licking	Invert - fw bivalve	<i>Unioemerus tetralasmus</i>	Pondhorn	No	1975	
Species of Concern		Licking	Amphibian - Frog / Toad	<i>Acris crepitans crepitans</i>	Eastern Crotch Frog	No	1990	
Species of Concern		Licking	Amphibian - Salamander	<i>Hemidactylum scutatum</i>	Four-toed Salamander	No	1974	
Species of Concern		Licking	Bird	<i>Ammodramus hemelaws</i>	Henslow's Sparrow	No	1998	
Species of Concern		Licking	Bird	<i>Cistothorus palustris</i>	Sedge Wren	No	2004	
Species of Concern		Licking	Bird	<i>Coragyps atratus</i>	Black Vulture	No	2009	
Species of Concern		Licking	Bird	<i>Dendroica cerulea</i>	Carolinian Warbler	No	2003	
Species of Concern		Licking	Bird	<i>Dolichonyx oryzivorus</i>	Bobolink	No	2008	
Species of Concern		Licking	Fish	<i>Esox masquinongy</i>	Muskellunge	No	2008	
Species of Concern		Licking	Fish	<i>Moxostoma carinatum</i>	River Redhorse	No	2007	
Species of Concern		Licking	Insect - butterfly	<i>Euphyas binoculata</i>	Two-spotted Skipper	No	1934	
Species of Concern		Licking	Invert - fw bivalve	<i>Lampsilis fasciola</i>	Wavy rayed Lampmussel	No	1975	
Species of Concern		Licking	Invert - fw bivalve	<i>Lasmigona complanata</i>	Creek Hellsucker	No	1977	
Species of Concern		Licking	Invert - fw bivalve	<i>Pleurobema setosus</i>	Round Pigee	No	1973	
Species of Concern		Licking	Invert - fw bivalve	<i>Pychobranchus fasciolaris</i>	Kidneyshell	No	1975	
Species of Concern		Licking	Mammal	<i>Eptesicus fuscus</i>	Big Brown Bat	No	2010	
Species of Concern		Licking	Mammal	<i>Lasiurus borealis</i>	Rad Bat	No	2010	
Species of Concern		Licking	Mammal	<i>Micotus ochrogaster</i>	Prarie Vole	No	1974	
Species of Concern	Threatened	Licking	Mammal	<i>Myotis lucifugus</i>	Little Brown Bat	No	2010	
Species of Concern		Licking	Mammal	<i>Myotis septentrionalis</i>	Northern Long-eared Bat	No	2010	
Species of Concern		Licking	Mammal	<i>Perimyotis subflavus</i>	Tn-colored Bat	No	2010	
Species of Concern		Licking	Mammal	<i>Peromyscus maniculatus</i>	Deer Mouse	No	2008	
Species of Concern		Licking	Mammal	<i>Sorex hoyi</i>	Pygmy Shrew	No	1973	
Species of Concern		Licking	Mammal	<i>Synaptomyia cooperi</i>	Southern Bog Lemming	No	1929	
Species of Concern		Licking	Mammal	<i>Taxidea taxus</i>	Baldgaur	No	2007	
Special Interest		Licking	Mammal	<i>Nycticeius humeralis</i>	Evening Bat	No	2010	
Extirpated		Licking	Invert - fw bivalve	<i>Actinonales ligamentina ligamentina</i>	Mucket	No	1973	

Licking county is home to countless species of animals. This is a list of all the wildlife in Licking county that is endangered, threatened, or are of concern. The proposed redevelopment, and brownfield can potentially have many direct and indirect negative affects on the local wildlife.

## Ecological impacts of redevelopment



Due to the use of explosives and heavy machinery, construction and deconstruction of buildings often generate sound and solid waste pollution.

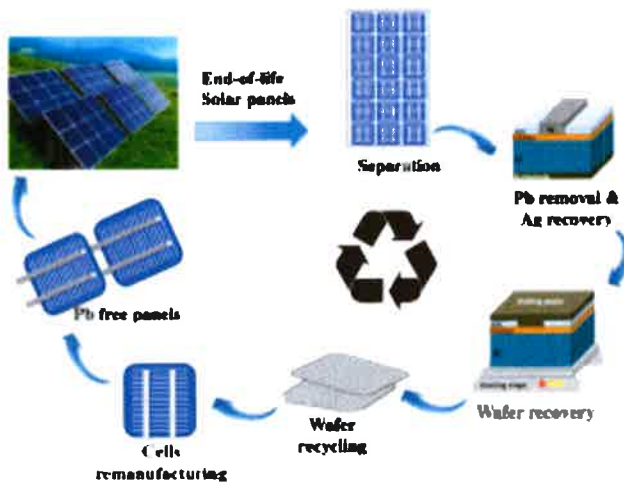
Some of the negative effects of redevelopment include solid waste and sound pollution; both of which are destructive to wildlife. Sound pollution can damage animals' hearing and change certain critical aspects of their behaviour; such as mating rituals. Many companies use dumpsters for solid waste. However, the dumpsters are emptied into landfills which also negatively affect wildlife, and can lead to contamination of watersheds and soils.



## ECOLOGICAL EFFECTS OF THE SOLAR ARRAY



Solar energy is one of the most popularly used renewable energy systems. Solar panels are extremely efficient at turning sunlight into electrical power. Solar panels do not have a large carbon footprint in their life cycle; however, after their life cycle has ended, often, only certain parts of solar panels can be recycled, while other parts are heated up and separated, and are sometimes hazardous. However, as technology gets better, more parts of solar panels are able to be recycled, leading to less of a worry of the negative ecological impact of putting the solar array on the brownfield.



This is a diagram of the post life cycle of solar panels. They are separated and the parts that can be recovered and recycled are recovered and recycled

## Bibliography

### BIBLIOGRAPHY:

- "Ohio Climate." *City-data*, [www.city-data.com/states/Ohio-Climate.html](http://www.city-data.com/states/Ohio-Climate.html).
- Bush, Bill. "Columbus has passed all-time annual precipitation record." *Columbus Dispatch*.
- Unintended Impacts of Redevelopment and Revitalization Efforts in Five Environmental Justice Communities." *Environmental Protection Agency*, Environmental Protection Agency, [www.epa.gov/sites/production/files/2015-02/documents/redev-revital-recomm-9-27-06.pdf](http://www.epa.gov/sites/production/files/2015-02/documents/redev-revital-recomm-9-27-06.pdf).
- "Species of concern in Licking County." *ODNR*, Ohio Government, [wildlife.ohiodnr.gov/portals/wildlife/pdfs/species%20and%20habitats/state-listed%20species/licking.pdf](http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/species%20and%20habitats/state-listed%20species/licking.pdf).
- Unintended Impacts of Redevelopment and Revitalization Efforts in Five Environmental Justice Communities." *Environmental Protection Agency*, Environmental Protection Agency, [www.epa.gov/sites/production/files/2015-02/documents/redev-revital-recomm-9-27-06.pdf](http://www.epa.gov/sites/production/files/2015-02/documents/redev-revital-recomm-9-27-06.pdf).
- Ohio Brownfield Database*, [epawwwextp01.epa.ohio.gov:8080/ords/epaxp/f?p=109:4:::NO::P4\\_APPLICATION\\_ID:1033](http://epawwwextp01.epa.ohio.gov:8080/ords/epaxp/f?p=109:4:::NO::P4_APPLICATION_ID:1033)
- Curry, Bryan. "Wastewater Treatment Plant." *NewarkOhio.net*, [www.newarkohio.net/city-services/water-wastewater-main/waste-water-plant](http://www.newarkohio.net/city-services/water-wastewater-main/waste-water-plant).
- "TECHNICAL GUIDANCE ON THE CAPPING OF SITES UNDERGOING REMEDIATION." *New Jersey Government*, New Jersey Government, [www.nj.gov/dep/srp/guidance/srra/capping\\_remediation\\_sites.pdf](http://www.nj.gov/dep/srp/guidance/srra/capping_remediation_sites.pdf).
- "How Long Do Solar Panels Last?" *Civicsolar*, [www.civicsolar.com/article/how-long-do-solar-panels-last](http://www.civicsolar.com/article/how-long-do-solar-panels-last).
- "Environmental Impacts of Solar Power." , 5 Mar. 2013, [www.ucsusa.org/resources/environmental-impacts-solar-power](http://www.ucsusa.org/resources/environmental-impacts-solar-power).
- The Opportunities of Solar Panel Recycling What Happens to PV Panels When Their Life Cycle Ends." , 11 Nov. 2019, [www.greenmatch.co.uk/blog/2017/10/the-opportunities-of-solar-panel-recycling](http://www.greenmatch.co.uk/blog/2017/10/the-opportunities-of-solar-panel-recycling).
- Harris, Tom. "How Building Implosions Work." *How Stuff Works*, [science.howstuffworks.com/engineering/structural/building-implosion.htm](http://science.howstuffworks.com/engineering/structural/building-implosion.htm)
- "Construction." *Business And Biodiversity*, [www.businessandbiodiversity.org/construction.html](http://www.businessandbiodiversity.org/construction.html).
- "Effects of Teardowns." *Chicago Metropolitan Agency for Planning*, Chicago Metropolitan Agency for Planning, [www.cmap.illinois.gov/about/2040/supporting-materials/process-archive/strategy-papers/teardowns/effects](http://www.cmap.illinois.gov/about/2040/supporting-materials/process-archive/strategy-papers/teardowns/effects).
- Shannon, Graeme, et al. "A synthesis of two decades of research documenting the effects of noise on wildlife." *Wiley Online Library*, [onlinelibrary.wiley.com/doi/full/10.1111/brv.12207](http://onlinelibrary.wiley.com/doi/full/10.1111/brv.12207).

\*All pictures were found using google images\*