

















## Ohio River in Beaver County NHA

PNHP Significance Rank: *Global*

### Site Description

This site represents a nearly 25-mile stretch of the Ohio River, its entire length in Beaver County. Starting at the Ohio and Pennsylvania state line the NHA Core Habitat contains the aquatic and near shore habitats of the Ohio River all the way to the Beaver and Allegheny County boundary south of Ambridge. The site supports a diversity of species of concern, including **three birds, six fishes, six mussels, one damselfly, a Silver Maple Floodplain Forest** community, and **five sensitive species of concern**. It is this great diversity of species of concern which contributes to the high ecological significance and conservation value of this site.

Species or natural communities of concern that can be found in this NHA include the following:

| Species or Natural Community Name                   |   | PNHP Rank <sup>1</sup> |         | PA Legal Status <sup>1</sup> | Last Seen | Quality <sup>2</sup> |
|---|---|------------------------|---------|------------------------------|-----------|----------------------|
|   |   | Global                 | State   |                              |           |                      |
| Peregrine Falcon ( <i>Falco peregrinus</i> )        |    | G4                     | S1B,S1N | PE (PE)                      | 2007      | E                    |
| Osprey ( <i>Pandion haliaetus</i> )                 |    | G5                     | S3B     | PT (PT)                      | 5/3/2013  | BC                   |
| Prothonotary Warbler ( <i>Protonotaria citrea</i> ) |    | G5                     | S2S3B   | N (CR)                       | 7/3/2009  | CD                   |
| Skipjack Herring ( <i>Alosa chrysochloris</i> )     |    | G5                     | S4      | N (DL)                       | 1979      | E                    |
| Smallmouth Buffalo ( <i>Ictiobus bubalus</i> )      |   | G5                     | S4      | N (DL)                       | 1985      | E                    |
| Longnose Gar ( <i>Lepisosteus osseus</i> )          |  | G5                     | S4S5    | N (DL)                       | 8/13/1985 | E                    |
| Silver Chub ( <i>Macrhybopsis storeriana</i> )      |  | G5                     | S3S4    | N (DL)                       | 8/17/1986 | E                    |
| River Redhorse ( <i>Moxostoma carinatum</i> )       |  | G4                     | S3S4    | N (DL)                       | 7/24/1985 | E                    |
| Channel Darter ( <i>Percina copelandi</i> )         |  | G4                     | S4      | N (DL)                       | 1983      | E                    |
| Dusky Dancer ( <i>Argia translata</i> )             |  | G5                     | S3S4    | N (N)                        | 7/30/2013 | AC                   |
| Flat Floater ( <i>Anodonta suborbiculata</i> )      |  | G5                     | S1      | N (N)                        | 9/24/2002 | E                    |
| Fragile Papershell ( <i>Leptodea fragilis</i> )     |  | G5                     | S2      | N (CR)                       | 10/6/2005 | E                    |
| Threehorn Wartyback ( <i>Obliquaria reflexa</i> )   |  | G5                     | SH      | N (PX)                       | 10/6/2005 | E                    |
| Pink Heelsplitter ( <i>Potamilus alatus</i> )       |  | G5                     | S2      | N (CR)                       | 10/6/2005 | E                    |
| Mapleleaf ( <i>Quadrula quadrula</i> )              |  | G5                     | S1S2    | N (PT)                       | 10/6/2005 | E                    |
| Paper Pondshell ( <i>Utterbackia imbecillis</i> )   |  | G5                     | S3S4    | N (CU)                       | 10/6/2005 | E                    |
| Silver Maple Floodplain Forest                      | <b>C</b>  | GNR                    | S4      | N (N)                        | 9/18/1992 | E                    |
| Sensitive species of concern A <sup>3</sup>         | <b>S</b>  | ---                    | ---     | ---                          | 1983      | E                    |
| Sensitive species of concern B <sup>3</sup>         | <b>S</b>  | ---                    | ---     | ---                          | 9/9/1997  | E                    |
| Sensitive species of concern C <sup>3</sup>         | <b>S</b>  | ---                    | ---     | ---                          | 9/6/1984  | E                    |
| Sensitive species of concern D <sup>3</sup>         | <b>S</b>  | ---                    | ---     | ---                          | 10/6/2005 | E                    |
| Sensitive species of concern E <sup>3</sup>         | <b>S</b>  | ---                    | ---     | ---                          | 2/14/2014 | E                    |

<sup>1</sup>See the PNHP website (<http://www.naturalheritage.state.pa.us/RankStatusDef.aspx>) for an explanation of PNHP ranks and legal status. A legal status in parentheses is a status change recommended by the Pennsylvania Biological Survey.

<sup>2</sup>See NatureServe website (<http://www.natureserve.org/explorer/eorankguide.htm>) for an explanation of quality ranks.

<sup>3</sup>This species is not named by request of the jurisdictional agency responsible for its protection.

**Peregrine falcons** require a combination of large open areas for hunting and tall, inaccessible ledges as nesting and brood-rearing sites. The State Route 51 Bridge over the Ohio River at Monaca provides such habitat for peregrine falcons. The surrounding urban environment also provides ample prey resources in the form of feral rock pigeons (*Columa livia*) and other non-native bird species. Similarly, abundant fishes and nest platforms support multiple pairs of nesting **osprey** along the river. Bottomland forests of the Ohio River islands and its shores provide habitat for breeding **Prothonotary warblers**, one of just a couple of sites for this songbird in southwestern Pennsylvania.

Aquatic habitats of the Ohio River support fish of the Large River Community and offer warm water temperatures, shallow shorelines, deep channels, and slack water impoundments behind dams (Walsh et al. 2007). Among the fish species of concern at this site are indicators of this community type, including the **smallmouth buffalo** and the **river redhorse**.

Currently, there are six species of state rare mussels which have populations within this NHA. Among these mussels is the **three-horn wartyback** which was thought to have been extirpated from Pennsylvania. However, in 2002 this species was re-discovered in the silt deposits around Phillis Island – seen for the first time in the state since before 1920. Historically, the mussel diversity in this section of the Ohio River was much richer with an additional 21 species of mussels once known from here. Many of these species were globally rare, but have now been extirpated from this part of the river, if not from the entire state, as a result of heavy industrial development, damming, and dredging.

Development impacts over the years have been felt by other taxa as well. Several rare plant species have been extirpated from this section of the Ohio River. **Blue false indigo** (*Baptisia australis*), last observed here in 1938, used to be found on scoured cobble bars in the river, but a suppressed flood regime has prevented this plant from persisting. The globally imperiled **Tennessee pondweed** (*Potamogeton tennesseensis*) was last seen in this area in 1952.

### Threats and Stresses

Nearly all the elements of concern at this site are affected by the quality of hydrologic conditions of the Ohio River system. From prothonotary warblers needing flooded forests with cavity trees for nesting to mussels like the mapleleaf depending on aquatic microorganisms like phyto- and zooplankton for food to fish like the river redhorse requiring clean gravel and boulders substrates to support their invertebrate food sources and for nesting, the aquatic integrity of the Ohio River is essential to the persistence of these species. With the Ohio River in Beaver County traversing through so much urban development there are a number of threats related to these species' critical needs.

Threats to native mussels include the construction of dams, non-native invasive species such as the zebra mussel (*Dreissena polymorpha*) and the Asian clam (*Corbicula fluminea*), stream channelization, water



David Yeany, PNHP

Ospreys nest at multiple locations along the Ohio River.

pollution, sedimentation from poor agriculture and forestry practices, bridge and road construction, and habitat loss through dredging (Richter et al. 1997).

Dredging removes sand and gravel substrate, and the deep depressions that remain often fill with silt and debris (Brown et al. 1998) unsuitable for colonization by riverine mussels. Altered substrate and flow resulting from gravel extraction can reduce or eliminate mussel populations (Hubbs et al. 2003). Dredging can alter river hydrology and increase silt in the water column. In addition to the direct effects to mussels, suspended sediments from excavation activities have led to the loss or reduction of fish and macroinvertebrate habitat (Brown et al. 1998, Cross et al. 1982).

Specific threats and stresses to the elements present at this site include the following:

- Development of Ohio River islands, riparian forests, and near shore habitats could result in loss of forest habitat and degradation of aquatic habitat.
- Non-point source pollution contributes excess nutrients, sediments, and pesticide run-off which degrade aquatic systems.
- Agricultural and industrial pollution, impoundments, siltation, turbidity, and competition with non-native species threaten both fishes and mussels.
- Disturbance from routine bridge maintenance and other human activities within 300 meters of the peregrine falcon nest structure during the breeding season (late February through July) and osprey nest locations during March through July.
- Risk of raptor collision (especially for juveniles) with automobiles, buildings, power lines and towers, and other objects.
- Risk of avian mortality from pesticides or other chemical contaminants.



Mike Good, iNaturalist

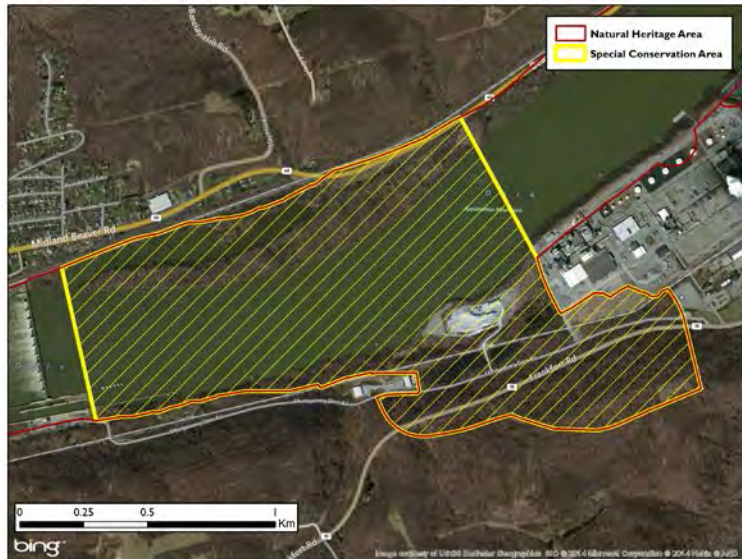
Three-horn wartyback was previously thought to be extirpated from the state but was rediscovered in the Ohio River in 2002.

### Conservation Recommendations

The following steps are recommended to ensure the persistence of these species at this site:

- Protect Ohio River habitats through acquisitions and easements of riparian buffer zones. Reduce siltation, chemical and sewage discharges, and monitor Core Habitat for potential sources of pollution and siltation. Maintain substrate characteristics, hydrologic connectivity, and maintain and/or improve existing flow regimes.
- Avoid or minimize in-stream disturbances and modifications such as sand and gravel dredging and construction of new dam impoundments.
- Control sediment runoff from mining, row crop agriculture, forestry, and degradation of riparian zones and aquatic habitat by livestock. Restore riparian vegetation and fence livestock from tributary streams in the Supporting Landscape and provide alternate water sources. Regulate land use in the Supporting Landscape and monitor construction, mining, and agricultural activities to minimize siltation and acid runoff.
- Maintain natural fish fauna by restricting stocking of non-native species and educate the public about the spread of non-native mussels through angler equipment.

- Maintain the Ohio River aquatic system to include fish spawning, rearing (juveniles), and dispersal (migration corridors) habitat.
- A Special Conservation Area was delineated just upstream of Montgomery Dam to highlight the importance of this area for nesting Prothonotary warblers, a colony of bank swallows, and an additional sensitive species of concern. Within this area, avoid fragmenting the existing riparian forests with additional buildings or infrastructure. Avoid removing trees, especially trees with cavities that could be used as nest trees by the Prothonotary warbler. Protect flooded bottomland forest and wetland that supports breeding Prothonotary warblers. This area is vulnerable to development and habitat alteration and should be targeted for land conservation.



A Special Conservation Area within the NHA was delineated above Montgomery Dam to highlight the vulnerability and significance of this sensitive habitat.

- Avoid disturbance from human activities within 300 meters of breeding sites within the Core Habitat during the breeding season for one of the sensitive species of concern (December – July).
- Schedule routine bridge maintenance and special activities within 300 meters of peregrine falcon nests outside critical nesting periods. Maintain nesting platforms as suitable nest structures for ospreys. Minimize human activities within 100 meters of osprey nesting platforms during the breeding season. Avoid the use of pesticides to control pigeons and other pest bird populations within 2 kilometers of the nest.

#### Location

Municipalities: *Beaver County: Aliquippa City, Ambridge Borough, Baden Borough, Beaver Borough, Bridgewater Borough, Center Township, Conway Borough, Crescent Township, East Rochester Borough, Economy Borough, Freedom Borough, Georgetown Borough, Glasgow Borough, Greene Township, Harmony Township, Hopewell Township, Industry Borough, Leetsdale Borough, Midland Borough, Monaca Borough, Ohioville Borough, Potter Township, Raccoon Township, Rochester Borough, Shippingport Borough, South Heights Borough, Vanport Township*

USGS quads: *East Liverpool North, Midland, Beaver, Baden, Hookstown, Ambridge*

Previous CNHI reference: *Ohio River, Ohioview Peninsula*

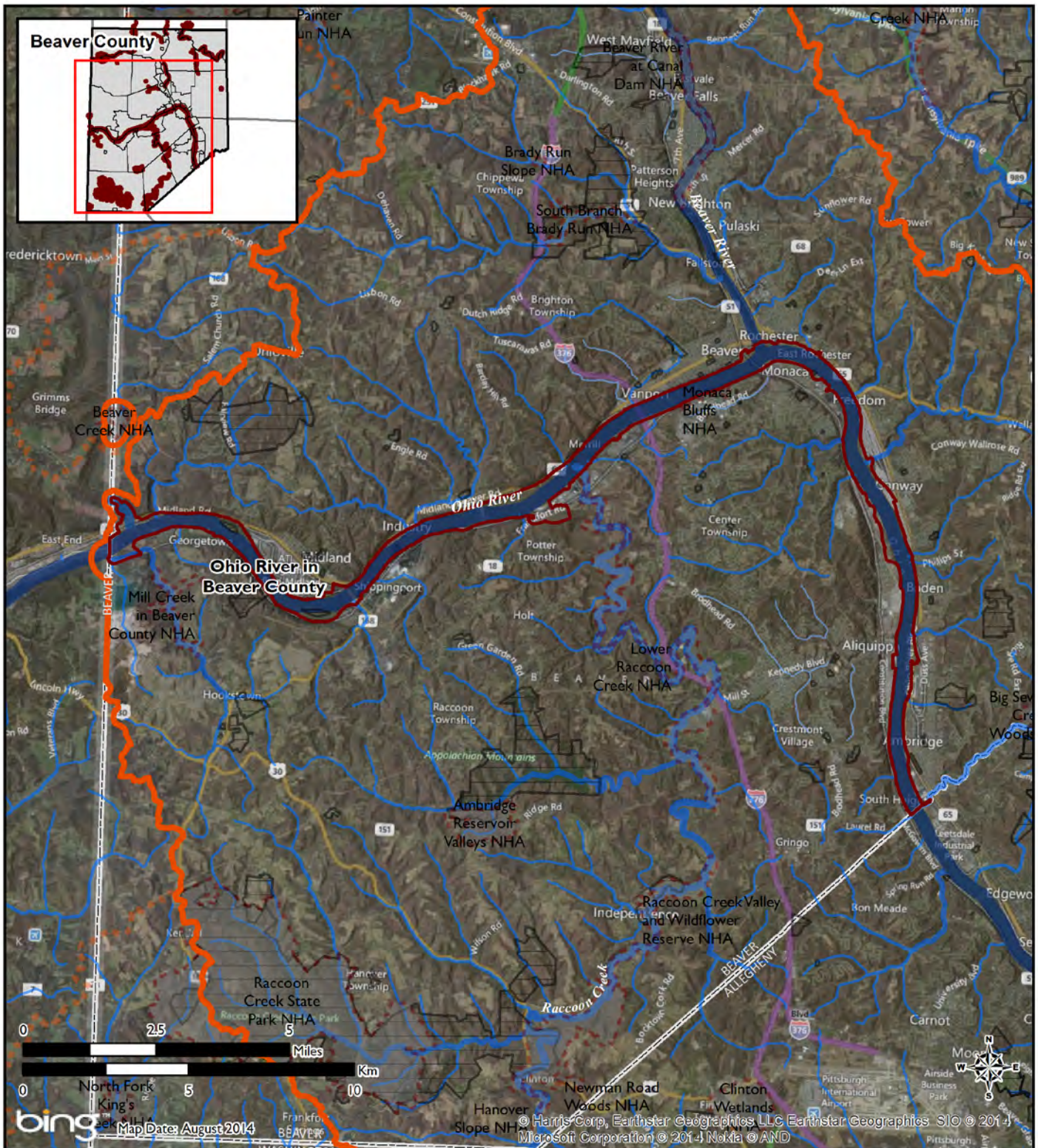
Associated NHAs: *None*

Overlapping Protected Lands: *Ohio River National Wildlife Refuge, Beaver County Parks*

#### References and Additional Reading

Brown, A.V., M.M. Lyttle, and K.B. Brown. 1998. Impacts of gravel mining on gravel bed streams. *Transactions of the American Fisheries Society* 127:979–94.

- Cross, F. B., F. J. DeNoyelles, S. C. Leon, S. W. Campbell, S. L. Dewey, B. D. Heacock, and D. Weirick. 1982. Report on the impacts of commercial dredging on the fishery of the lower Kansas River. US Army Corps of Engineers, Kansas City District, Report Number DACW 41-79-C-007.
- Hubbs, D., S. Lanier, D. McKinney, D. Sims, and P. Black. 2003. Evaluation of abandoned commercial sand and gravel dredge sites as freshwater mussel habitat on the lower Tennessee River. Tennessee Wildlife Resources Agency, Aquatic Habitat Protection Program, Nashville, TN. ii + 30 pp., + 2 appendices.
- Ortmann, Arnold E. 1919. A Monograph of the Naiades of Pennsylvania. Part III. Systematic account of the Genera and Species. *Memoirs of the Carnegie Museum*. 8:1, 384 pp.
- Ortmann, Arnold E. Pre-1919. Specimens deposited at Carnegie Museum of Natural History.
- Richter, B.D., D.P. Braun, M.A. Mendelson. L.L. Master. 1997. Threats to imperiled freshwater fauna. *Conservation Biology* 11: 1081-1093.
- Walsh, M.C., J. Deeds, and B. Nightingale. 2007. User's Manual and Data Guide to the Pennsylvania Aquatic Community Classification. Pennsylvania Natural Heritage Program, Western Pennsylvania Conservancy, Middletown, PA, and Pittsburgh, PA.



## Ohio River in Beaver County Natural Heritage Area

This section of the Ohio River provides aquatic, riparian, and upland habitat for a high diversity of bird, fish, mussel and other invertebrate species of concern.

**Significance Rank:**  
**GLOBAL**



**Pennsylvania  
Natural Heritage Areas**

-  Core Habitat
-  Supporting Landscape
-  Other Core Habitat
-  Other Supporting Landscape
-  Conservation Lands