Appendix C
Biological Evaluation and USFWS Concurrence Letter

Biological Evaluation

Revision No: Final

St. Louis Lambert International Airport

Boeing Site Development
May 10, 2023

Contents

Appendices

Tables

Figures

Acronyms and Abbreviations

BE	Biological Evaluation
Boeing	The Boeing Company
EPA	U.S. Environmental Protection Agency
ESA	*Endangered Species Act*
FAA	Federal Aviation Administration
IPaC	Information, Planning, and Conservation
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
STL	St. Louis Lambert International Airport
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WOTUS	waters of the United States

1. Introduction

Jacobs prepared this Biological Evaluation (BE) to support development of an environmental assessment being prepared to evaluate the impacts of construction and operation of new facilities for The Boeing Company (Boeing) on the 110-acre Brownleigh site and the 75-acre Northern Tract site within and adjacent to the St. Louis Lambert International Airport (STL). Brownleigh, located within the Berkeley municipality in St. Louis County, and Northern Tract, located in unincorporated St. Louis County (Figure 1), are respectively located at latitude 38°44′46.26″N and longitude -90°20′28.99′W and latitude 38°45′25.33″N and longitude -90°22′5.98″W. Jacobs developed this BE based on review of remote data and information obtained during a site visit conducted from March 13 through 15, 2023. Appendix A contains a photograph log documenting conditions observed during the site visit.

The purpose of this BE is to provide Boeing with site-specific information regarding the potential effects of the project on federally listed threatened or endangered species, or species proposed for listing, or designated and/or proposed critical habitat, in compliance with Section 7(a)(2) of the *Endangered Species Act* (ESA). Jacobs prepared this BE according to the U.S. Fish and Wildlife Service (USFWS) requirements outlined in *Guidance for Preparing a Biological Assessment* (USFWS n.d.a). Appendix B includes federally listed species for reference. Appendix C includes state-listed species for reference, but these species do not influence the Section 7 findings.

2. Project Area

The Brownleigh site covers approximately 110 acres within the Berkeley municipality in St. Louis County near STL. The site is bounded by James S. McConnell Boulevard to the west and south, Airport Road to the north, and Interstate 170 to the east. Originally a residential subdivision, development of the site began during the 1940s. STL began purchasing parcels in the 1980s as part of a noise mitigation program and purchased all parcels by the early 2000s. STL demolished aboveground structures within the community as the parcels were acquired. The Brownleigh site retains some remnants of the former community via the road network, stormwater structures, former foundations, and other remnants left after the site was razed. Today, the site is largely overgrown with vegetative communities reclaiming much of the area.

The Northern Tract site is in unincorporated St. Louis County, occupying approximately 75 acres directly north of STL. Banshee Road bounds the site to the north, whereas STL bounds the rest of the site. Current tenants of the site include Airport Terminal Services and GoJet Airlines, and current building plans will use approximately 60 acres of the eastern half of the site for development. The site is entirely built out and unvegetated, and a large, abandoned structure approximately 19 acres in size occupies the proposed development site on the eastern half of the site.

2.1 Soils

According to the Natural Resources Conservation Service (NRCS) soils maps, three soil types occur within the selected properties: Urban land-Harvester complex, Menfro-Urban land complex, and Urban land upland soils. Urban land-Harvester complex (2 to 9% slopes) occurs throughout the Brownleigh site (96% of soil composition) and in a small portion of the Northern Tract site (7% of soil composition); it is characterized as a moderately well-drained silt loam to clay loam that is not considered hydric (NRCS 2019). Menfro-Urban land complex soils (5 to 9% slopes) occur throughout the remainder of the Brownleigh site (4% of soil composition), occupying a small sliver of the far eastern portion of the site. These soils are characterized as non-hydric, well-drained silt loam to silty clay loams (NRCS 2019). The majority of the Northern Tract site (93% of soil composition) is made up of Urban land upland soils (0 to 5% slopes), which have been highly altered or obscured by urban works or structures in a largely built-up environment and may be significantly changed by human-transported or human-altered materials (USDA 2019). Appendix D provides U.S. Department of Agriculture NRCS Soil Resource Reports.

2.2 Ecological Communities

Habitat within the Brownleigh site typically includes open fields interspersed with varying degrees of tree cover. Forested areas within the site consisted primarily of hardwood species including American sycamore (*Platanus occidentalis*), sweetgum (*Liquidambar styraciflua*), northern red oak (*Quercus rubra*), water oak (*Quercus nigra*), black cherry (*Prunus serotina*), red maple (*Acer rubrum*), silver maple (*Acer saccharinum*), eastern black walnut (*Juglans nigra*), tulip tree (*Liriodendron tulipifera*), eastern cottonwood (*Populus deltoides*), sugarberry (*Celtis laevigata*), hickories (*Carya spp.*), and ash trees (*Fraxinus spp.*). Softwood species within the site were relatively sparse in comparison and consisted of shortleaf pine (*Pinus echinata*) and eastern white pine (*Pinus strobus*). The understory was relatively sparse and mostly devoid of shrub species, except for scattered eastern red cedar (*Juniperus virginiana*), various saplings of canopy species, and large monocultures of non-native bush honeysuckles (*Lonicera spp.*). Herbaceous species consisted of cluster fescue (*Festuca paradoxa*), henbit (*Lamium amplexicaule*), foxtails (*Setaria spp.*), broomsedges (*Andropgon spp.*), and goldenrods (*Solidago spp.*).

Observations of wildlife species within the Brownleigh site were common, particularly among avian species. Jacobs observed the following during the March 13 to 15, 2023, site surveys: mourning dove (*Zenaida macroura*), cedar waxwing (*Bombycilla cedrorum*), northern cardinal (*Cardinalis cardinalis*), American robin (*Turdus migratorius*), brown-headed cowbird (*Molothrus ater*), common grackle (*Quiscalus quiscula*), red-winged blackbird (*Agelaius phoeniceus*), white-throated sparrow (*Zonotrichia albicollis*), red fox sparrow (*Passerella iliaca iliaca*), dark-eyed junco (*Junco hyemalis*), house finch

(*Haemorhous mexicanus*), northern mockingbird (*Mimus polyglottos*), blue jay (*Cyanocitta cristata*), American crow (*Corvus brachyrhynchos*), downy woodpecker (*Dryobates pubescens*), red-bellied woodpecker (*Melanerpes carolinus*), northern flicker (*Colaptes auratus*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and killdeer (*Charadrius vociferus*). The only visually observed mammalian species during the survey event were the eastern cottontail (*Sylvilagus floridanus*) and eastern gray squirrel (*Sciurus carolinensis*); however, Jacobs observed tracks and droppings of other mammalian species, including white-tailed deer (*Odocoileus virginianus*), coyote (*Canis latrans*), raccoon (*Procyon lotor*), and Virginia opossum (*Didelphis virginiana*). Numerous small mammal (rodent) burrows and nests were also present throughout the site.

The Northern Tract site is fully built out and devoid of vegetative communities. Sightings of wildlife species during the March 13 to 15, 2023, survey events were limited to introduced avian species that commonly occur in developed or urban environments, including European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), and rock pigeon (*Columba livia*).

2.3 Surface Waters and Wetlands

Aquatic resources include streams, wetlands, and open-water features (for example, lakes, ponds, and reservoirs) regulated by federal, state, and local agencies. The U.S. Army Corps of Engineers (USACE) regulates jurisdictional waters of the United States (WOTUS) under Section 404 of the *Clean Water Act*. On April 12, 2023, The U.S. District Court for the District of North Dakota issued an order preliminary enjoining the 2023 "Revised definition 'waters of the United States'" rule. In light of the preliminary injunctions the agencies are interpreting "waters of the United States consistent with the pre-2015 regulatory regime in the 26 affected states, which includes Missouri, until further notice. USACE asserts jurisdiction over the following waters:

- *traditional navigable waters (TNWs)*
- *wetlands adjacent to TNWs*
- *non-navigable tributaries of TNWs that are relatively permanent waters (RPWs) where the tributaries typically flow year-round or have continuous flow at least seasonally (i.e, typically 3 months)*
- *wetlands that directly abut (i.e., have a continuous surface connection to) such tributaries (U.S. Environmental Protection Agency [EPA] and USACE, 2008)*

USACE will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a TNW:

- *non-navigable tributaries that are not relatively permanent*
- *wetlands adjacent to non-navigable tributaries that are not relatively permanent*
- *wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary (EPA and USACE, 2008)*

A "significant nexus" is determined through analysis of "the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of downstream TNWs" (EPA and USACE, 2008).

USACE will decide jurisdiction over isolated (i.e., non-adjacent wetlands and waters based on a fact specific analysis to determine whether impacts to those wetlands or waters affect interstate commerce.

According to the USFWS wetlands resource mapper, no surface water resources or wetlands occur on either the Brownleigh or Northern Tract site (USFWS n.d.c). A site visit conducted by qualified biologists on March 13 through 15, 2023, confirmed that no areas exhibiting positive indicators of hydrophytic vegetation, hydric soils, or hydrology occur on either site.

The USFWS National Wetlands Inventory Data were reviewed in the analysis of the properties (Appendix E). The nearest recorded resources are the headwaters to Coldwater Creek just north of the Northern Tract site above Banshee Road and two palustrine forested wetlands approximately 1,555 and 2,345 linear feet northeast of the Northern Tract site (Figure 1) (USFWS n.d.c). The site visit confirmed that these drainage features are the most proximate to the Northern Tract site, with no waterbody features or conveyances observed within the Northern Tract site. No waterbody features or conveyances were identified on the Brownleigh site, and the USFWS National Wetlands Inventory Data did not indicate any surface water or wetland features within the immediate vicinity of the site.

3. Listed Species and Potential Adverse Effects

This section describes federally listed and proposed listed species and evaluates the potential for adverse effects on each species.

3.1 Listed and Proposed Listed Species

The ESA was enacted to protect critically imperiled species from extinction as a consequence of growth and development, with the purposes of preventing extinction and recovering species to the point where the law's protections are no longer needed. Administration of the ESA is under the guidance of USFWS and the National Marine Fisheries Service (NMFS). USFWS is responsible for terrestrial, freshwater, and catadromous species, whereas NMFS is responsible for marine and anadromous species. Federally endangered and threatened species administration and consultation in Missouri is conducted through the USFWS Columbia Ecological Services Field Office in Columbia, Missouri.

The USFWS Information, Planning, and Conservation (IPaC) System website (USFWS n.d.b), USFWS Environmental Conservation Online System, and the Missouri Department of Conservation indicate that 15 federally listed species (Table 3-1) have the potential to occur on the Brownleigh and Northern Tract properties (Appendix B). Four species were determined to potentially be adversely affected by development of the proposed sites, including the Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), tricolored bat (*Perimyotis subflavus*), and the monarch butterfly (*Danaus plexippus*). Because there is no suitable habitat on either site for gray bat (*Myotis grisescens*), rufa red knot (*Calidris canutus rufa*), decurrent false aster (*Boltonia decurrens*), eastern prairie white-fringed orchid (*Platanthera leucophaea*), western prairie white-fringed orchid (*Platanthera praeclara*), and Mead's milkweed (*Asclepias meadii*), there would be no effect to these species. Because there is no aquatic habitat on either site, a determination of no effect is made for five listed aquatic animal species: pallid sturgeon (*Scaphirhynchus albus*), eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*), pink mucket (*Lampsilis abrupta*), scaleshell (*Leptodea leptodon*), and spectaclecase (*Cumberlandia monodonta*).

Table 3-1. Listed and Proposed Species with Potential to Occur on the Sites

Common Name	Scientific Name	Federal Status	Habitat	Effects Determination
Mammals				
Gray Bat	*Myotis grisescens*	E	Obligate cave-dweller, both for hibernating and summer roosting. Does not use abandoned structures similar to other bats. Forages over water and in surrounding riparian habitats.	No Effect
Indiana Bat	*Myotis sodalis*	E	Hibernates predominantly in limestone caves. Summer roosts include under the bark of large trees, and summer habitats consist of wooded or semi-wooded areas often along streams. Foraging habitats include riparian zones, upland forests, ponds, and fields.	May Affect, Not Likely to Adversely Affect
Northern Long-eared Bat	*Myotis septentrionalis*	E	Generally associated with old-growth forest, relying on intact interior forest with low edge-to-interior ratios. Forages within forests, along forest edges, over clearings, and occasionally over water. Hibernation primarily in caves and other suitable structures.	May Affect, Not Likely to Adversely Affect

Common Name	Scientific Name	Federal Status	Habitat	Effects Determination
Tricolored Bat	*Perimyotis subflavus*	UR/PE	Associated with forested landscapes (including perimeters) where they forage near trees and along waterways. Roosts may include mature stands or buffer zones near perennial streams, including dead or live tree foliage, tree cavities, caves, mines, rock crevices, and human-made structures. Sometimes roosts in open sites not tolerated by other bat species. Hibernation sites are often caves, mines, or cave-like tunnels, as well as box culverts under highways and dams.	May Affect, Not Likely to Adversely Affect
Birds				
Rufa Red Knot	*Calidris canutus rufa*	T	Occasionally appears at interior locations in eastern North America, where it frequents shorelines of large lakes and freshwater marshes.	No Effect
Fish				
Pallid Sturgeon	*Scaphirhynchus albus*	E	Typically occupies large, turbid, free-flowing riverine habitat, occurring in strong current over firm gravel or sandy substrate. Tends to select main channel habitats and main channel areas with islands or sandbars.	No Effect
Amphibians				
Eastern Hellbender	*Cryptobranchus alleganiensis alleganiensis*	E	Occupies rocky, clear creeks and rivers, usually with large shelter rocks. Typically avoids water warmer than 20°C. Often found in areas with large, irregularly shaped, and intermittent rocks and swiftly moving water, and tends to avoid wider, slow-moving waters with muddy banks or slab rock bottoms.	No Effect
Mollusks				
Pink Mucket	*Lampsilis abrupta*	E	A large river species associated with fast-flowing waters, although it has been able to survive and reproduce in impoundments with river-lake conditions but never standing pools of water. Found in strong currents with rocky or boulder substrates with depths up to 1 meter. May also inhabit deeper waters with slower currents and gravel substrates.	No Effect
Scaleshell	*Leptodea leptodon*	E	Occurs in riffles with moderate to high gradients in creeks to large rivers. Typically associated with riffles, relatively strong currents, and substrate of mud, sand, assemblages of gravel, cobble, and boulder. Currently restricted to rivers with relatively good water quality in stretches with stable channels.	No Effect

Common Name	Scientific Name	Federal Status	Habitat	Effects Determination
Spectaclecase	*Cumberlandia monodonta*	E	Habitat specialist occurring in large rivers, most often inhabiting riverine microhabitats sheltered from the main force of current. Occurs in substrates from mud and sand to gravel, cobble, and boulders in relatively shallow riffles and shoals with slow to swift current; also reported in tree stumps, root masses, and rooted aquatic vegetation. Seldom, if ever, moves, except to burrow deeper in substrate.	No Effect
Insects				
Monarch Butterfly	*Danaus plexippus*	UR	Habitat is highly variable, and a wide variety of flowering plants are used throughout migration and breeding, including *Coreopsis*, *Viburnum*, *Phlox*, *Solidago*, *Symphyotrichum*, *Eurybia*, *Liatris*, and *Echinacea*. Egg laying and larval feeding occurs only on milkweed (*Asclepias*).	May Affect, Not Likely to Adversely Affect
Plants				
Decurrent False Aster	*Boltonia decurrens*	T	Colonizes periodically disturbed riverine moist soil habitats. Successful sites are characterized by moist, sandy soil and regular disturbance, preferably periodic flooding, which maintains open areas with high light levels. Now primarily restricted to disturbed lowland areas, old fields, and roadsides where it appears to be dependent on human activities (mowing and cultivation).	No Effect
Eastern Prairie White-fringed Orchid	*Platanthera leucophaea*	T	Occupies mesic to wet prairies and wet sedge meadows. Peripheral habitat includes sedge-sphagnum bog mats around neutral pH kettle lakes, and fallow agricultural fields. Wet ditches and railroad rights-of-way also serve as refugia.	No Effect
Mead's Milkweed	*Asclepias meadii*	T	Occupies mesic to dry tallgrass and upland prairies with sandstone or chert bedrock, prairie hay meadows, railroad rights-of-way, prairie remnants, virgin mesic silt loam prairies, and igneous glades.	No Effect
Western Prairie White-fringed Orchid	*Platanthera praeclara*	T	Commonly found in full sun on moist to wet calcareous tallgrass prairies and sedge meadows (many flooded for 1 to 2 weeks per year). Most often grows in relatively undisturbed grassland but can also occur in moderately disturbed sites such as roadside ditches.	No Effect

°C = degree(s) Celsius

E = endangered

PE = potentially endangered

T = threatened

UR = under review

Jacobs performed a survey of the 110-acre Brownleigh site and 75-acre Northern Tract site from March 13 through 15, 2023, to assess site conditions and determine presence or absence of listed or proposed species and their suitable habitat. Jacobs conducted the protected species assessments by observations; Jacobs did not perform species-specific or habitat-specific protocol surveys. Jacobs walked the entire area within the survey boundary to determine dominant vegetation species and overall habitat structure, and for significant observations such as obvious nests, dens, and suitable wildlife habitat. Jacobs paid particular attention to areas that might provide suitable habitat for the listed species.

Suitable habitat for multiple listed species was observed within the Brownleigh site (Table 3-1). Forested areas within the Brownleigh site may provide summer refugia for the listed bat species that might be impacted by development of the Brownleigh site; tricolored bats may also use abandoned structures within the Northern Tract site. Suitable feeding habitat for monarch butterflies may be present within unmaintained brushy areas during spring and fall migrations if nectaring plant species occur, and suitable breeding habitat may occur if milkweeds (*Asclepias spp.*) occur. No remnant fruiting structures of milkweeds were observed during site surveys.

3.2 Designated Critical Habitat

The USFWS IPaC System website (USFWS n.d.b) indicates that no federally designated critical habitat is on or adjacent to the Brownleigh or Northern Tract properties (Appendix B). Therefore, no destruction or adverse modification of critical habitat would result. Based on this information, no further coordination with USFWS is required regarding critical habitat.

3.3 General and Species-specific Protection Measures

This section provides general and species-specific protection measures that will be implemented to minimize potential effects to natural resources.

3.3.1 General Protection Measures

The following general environmental measures and best management practices are commonly used on construction sites and will be implemented during work on the site. These practices minimize the potential for direct and indirect effects to onsite and offsite natural resources and may be incidentally beneficial to listed species. The measures and practices include the following:

- Dust control measures will be in place during construction. These control measures could include the application of water to areas of bare soil to reduce dust and particles in the air.
- Before construction activity begins, onsite construction personnel will be briefed by the construction manager regarding best management practices for this area.
- The construction contractor will demarcate the project boundaries and keep within those boundaries, creating the smallest area footprint possible.
- Garbage and construction debris will be managed to avoid attracting nuisance wildlife. At the end of every workday, the work site will be policed and cleaned accordingly. Refuse will be removed from the site or stored in appropriate containers until it is removed.
- Soil erosion and sediment control devices will be used and maintained throughout construction.
- A Soil Erosion and Sedimentation Control Plan will be prepared; applicable stormwater permits and plans, such as the National Pollutant Discharge Elimination System permit and a Stormwater Pollution Prevention Plan, will be obtained.
- Stormwater will be conveyed through oil/water separators to basins for infiltration and evaporation.

3.3.2 Species-specific Protection Measures

Species-specific protection measures and best management practices will be required during clearing activities because listed species may occur on the properties. These practices include the following avoidance and minimization measures:

- Presence or absence survey of abandoned structures for tricolored bat will be completed before demolition.
- Tree removal activities should occur during the winter season (November 1 to March 31) after bat pups have fledged. Because of the presence of habitat suitable for endangered bat species, it is also recommended that consultation with the local USFWS office be conducted before cutting trees in this site.
- Native bird species and their nests are protected under the *Federal Migratory Bird Treaty Act*, which prohibits taking (including killing, capturing, selling, trading, and transporting) protected migratory bird species without prior authorization by USFWS. Under this act, it is illegal to destroy a nest that has eggs or chicks in it or if there are young birds that are still dependent on the nest for survival. Nesting bird surveys should be conducted before any tree- or brush-clearing activities take place. If active nests are observed, stop-work orders should be put in place and the area around the nest cordoned off until the birds are fully fledged and nest sites are no longer active.
- As a candidate species, the monarch butterfly is not yet listed or proposed to be listed; therefore, consultation with USFWS is not required. However, USFWS recommends taking advantage of any opportunity to conserve the species, and, if unmowed, brushy areas within the sites of occurrence can be maintained, it would benefit the species to do so.

4. Conclusions

Based on the information contained in this BE, the Federal Aviation Administration (FAA) determines that these actions **may affect,** but are **not likely to adversely affect**, the Indiana bat, northern long-eared bat, tricolored bat, and monarch butterfly. A finding of **no effect** is made for listed aquatic species, including the pallid sturgeon, eastern hellbender, pink mucket, scaleshell, and spectaclecase, and for other species that have no habitat in the project area, including the gray bat, rufa red knot, decurrent false aster, eastern prairie white-fringed orchid, western prairie white-fringed orchid, and Mead's milkweed. Further, the FAA determines that these actions would be mitigated on listed species with implementation of species-specific protection measures and best management practices specified in Section 3.3.2. There would be **no adverse modification** of critical habitat because there is no designated critical habitat on either site. In accordance with the Section 7 consultation process, further consultation with USFWS will be required due to potential impacts on federally listed species. If any threatened or endangered species are found alive, dead, injured, or hibernating within the project area, the [insert agency/POC] must be notified immediately at [insert number].

5. References

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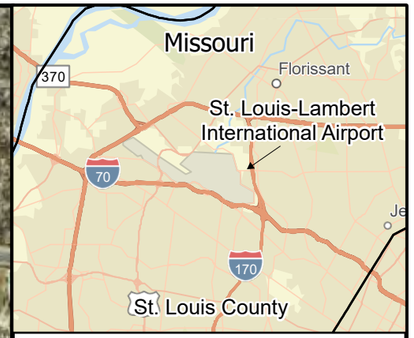
Figure



LEGEND:

Project Area Boundary

N

BASE MAP SOURCE:
USGS USA Topo Map

0 1,000 2,000 3,000
FEET

Site Map
Biological Evaluation
Boeing STL Expansion

Figure 1
Airport Location

DATE: 5/5/2023

Jacobs

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Appendix C
Missouri Department of Conservation and U.S. Fish and Wildlife Service – State-listed Species List

Common Name	Scientific Name	State Status	Habitat	Effects Determination[a]
Mammals				
Eastern Spotted Skunk	*Spilogale putorius*	E	Prefers forested areas and habitats with significant cover. Seems to require some form of cover such as brushy field borders, fence rows, and heavily vegetated gullies between dens and foraging sites. Occupies dens excavated by other species, often under brushpiles, in hollow logs or trees, under rock crevices, or in abandoned structures.	Potential Displacement and Loss of Habitat
Birds				
Bachman's Sparrow	*Puecae aestivalis*	E	Found in dense, layered ground vegetation and open mid-stories with scattered shrubs and saplings, including young clearcuts, grassy areas, oak-scrub, and powerline cuts.	Potential Displacement and Loss of Habitat
Northern Harrier	*Circus hudsonius*	E	Usually seen over prairies, marshes, and agricultural fields, favoring large, undisturbed tracts with thick, low vegetation. Midwestern populations tend to breed in wetlands.	Unlikely to Affect
Fish				
Flathead Chub	*Platygobio gracilis*	E	Occupies turbid flowing waters in main channels of small to large rivers. May also be found in pools of small creeks with clear water, little current, and coarse gravel or bedrock bottom.	No Effect
Lake Sturgeon	*Acipenser fulvescens*	E	Primarily inhabits the bottom of large, clean, freshwater rivers and lakes with preferred substrate of firm sand, gravel, or rock. In rivers, preferred habitat is deep mid-river areas and pools between 4 to 9 meters deep. Habitat in the Missouri River is characterized by river channels developed in deep deposits of gravel, sand, and silt.	No Effect
Mollusks				
Ebonsyshell	*Reginaia ebenus*	E	Inhabits large rivers, preferring swift water and stable sandy or gravel shoals. Coarse sand and gravel substrate provides the most suitable habitat, though the species may also be found over sand, silt, and mud. Often occurs in currents in 10 to 15 feet of water.	No Effect
Elephant-ear	*Elliptio crassidens*	E	Inhabits large rivers with muddy sand, sand, and rocky substrates in moderate current.	No Effect
Sheepnose	*Plethobasus cyphus*	E	Often associated with riffles and gravel or cobble substrate, but often reported from deep water (greater than 2 meters) with slight to swift currents and mud, sand, or gravel bottoms. Considered a medium to large river species.	No Effect
Snuffbox	*Epioblasma triquetra*	E	Found in riffles of small to medium creeks, in large rivers, and in shoals and wave-washed shores of lakes. Adults are typically buried deep in substrate except when breeding.	No Effect

Common Name	Scientific Name	State Status	Habitat	Effects Determination[a]
Plants				
Running Buffalo Clover	*Trifolium stoloniferum*	E	Occurs in mesic woodlands in partial to filtered sunlight, with patterns of moderate periodic disturbance for a prolonged period, such as mowing, trampling, or grazing. Most often found in regions underlain with limestone or other calcareous bedrock, but not exclusively. Also reported from a variety of disturbed woodland habitats, grazed woodlots, mowed paths, logging roads, and steep, weedy ravines.	Unlikely to Affect

[a] Determinations are for the Brownleigh site only; the Tract 1 South site did not have suitable habitat for any state-listed species.

E= Endangered
T= Threatened