

Standing Analysis of for the Kentucky Determination Key

Introduction

This standing analysis supports the conclusions the “Kentucky Determination Key” delivered by the Service’s Information for Planning and Consultation (IPaC) system. The U.S. Fish and Wildlife Service (Service) Kentucky Field Office (KFO) developed this part of the Determination Key (DKey) to streamline the process of reviewing projects that typically result in “no effect” or “may affect – not likely to adversely affect” determinations. This standing analysis is broken into five separate analyses:

1. [Virginia Big-eared Bat](#)
2. [Gray Bat](#)
3. [Big River Aquatic Species](#)
4. [Small – Medium Stream Aquatic Species](#)
5. [Plant Species](#)

The routine nature of the review of these projects provides an opportunity for the KFO to programmatically evaluate effects of these projects on federally listed plant species. This DKey will eliminate the need for the KFO to individually review a large number of projects and will provide Federal Action Agencies, consultants, and project proponents an immediate response to their requests for consultation or technical assistance.

VBEB Standing Analysis

PROPOSED ACTION

The proposed Action is the compilation of many different types of projects that typically would not significantly affect the Virginia big-eared bat. To use this standing analysis and receive a conclusion from IPaC through the DKey, each project must implement the following conservation measures in the list below:

- Projects will not involve the following activities: wind turbines, modifications to existing bridges, contaminants in the environment (e.g., leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant), or blasting (other than a fireworks display).
- Projects will not occur within 0.5 mile of a known Virginia big-eared bat hibernaculum and/or roosting site.
- Activities associated with projects will not occur within 1,000 feet from a cliffline.
- Projects within action areas containing features that could potentially provide undocumented hibernacula and/or roosting habitat for Virginia big-eared bats will provide a Phase I habitat assessment¹ supporting that these features are not suitable for Virginia big-eared bat use.

To ensure compliance with the ESA, project-specific consultation (or other programmatic consultation, if applicable) with the Service may be necessary for projects that would not implement the conservation measures and, thus, would not receive a conclusion from IPaC.

ACTION AREA

The Action Area is located across a 19-county area that largely overlaps or is adjacent to the USFS, Daniel Boone National Forest within the Commonwealth of Kentucky. Because the covered projects will be proposed in the future, we cannot identify the specific Action Area.

SPECIES DESCRIPTION

Virginia big-eared bats live in caves year-round. They prefer caves in karst regions (i.e., areas underlain with limestone bedrock and many caves and sinkholes). They are often associated with clifflines and sandstone shelters in forests dominated by oak-hickory or beech-maple-hemlock; and, they tend to feed along the edges of forested areas.

Additional information about the species, including status, life history, and conservation can be found in documents accessed from the Service's Environmental Conservation Online System (ECOS) (<https://ecos.fws.gov/ecp/>) and is incorporated by reference in this document.

STATUS OF THE SPECIES IN THE ACTION AREA

Virginia big-eared bats occur in nineteen counties in eastern Kentucky. Without site-specific data to inform the status of the species in a project area, it is reasonably certain that Virginia big-eared bats are present throughout its range in Kentucky where suitable habitat exists.

EFFECTS ANALYSIS

Qualifying projects typically involve some or all of the stressors listed below. Because the project areas would not include hibernacula or summer roosting site for this bat species, we only expect the species to potentially be affected during the timeframe when they are active (approximately April 1 – November 14).

Minor Noise and Vibration

Minor noise and vibration produced by qualifying projects are typically produced temporarily during the construction phase (i.e., operation of construction equipment) and may be permanently produced during the operation phase (e.g., vehicular traffic). Because most of the construction activities would occur during the day and the project areas would not include hibernacula or summer roosting habitat for Virginia big-eared bats, we believe exposure to this stressor from qualifying projects would be discountable.

Night Lighting

Night lighting produced by qualifying projects is typically temporary during the construction phase and/or permanent during the operation phase (e.g., facility lighting). Bats could potentially be exposed to this stressor at night while foraging and commuting. Night lighting produced during projects is localized. It is typically most severe in areas where natural habitat has already been altered during site preparation. For these reasons, we expect Virginia big-eared bats to be minimally exposed to this stressor and to adjust their behavior to avoid these areas.

CONCLUSION

If a project is not consistent with the proposed action, the DKey will provide a response indicating that it cannot generate a conclusion for the Virginia big-eared bat and will recommend project-specific coordination with the KFO. If the user provides project-specific information consistent with the conservation measures, IPaC will generate a consistency letter (for non-federal action agencies) or a concurrence letter (for federal action agencies) concluding that the project is consistent with a “no effect” or a “may affect – not likely to adversely affect” determination for the Virginia big-eared bat. We base these conclusions on the effects analysis above, summarized in Table 1.

Table 1. A summary of the effects of the stressors from qualifying projects on the Virginia big-eared bat.

<i>Noise and Vibration</i>	None or insignificant
<i>Night Lighting</i>	None or insignificant
Conclusion	“No effect” or “May affect – not likely to adversely affect”

Gray Bat Standing Analysis

PROPOSED ACTION

The proposed Action is the compilation of many different types of projects that typically would not significantly affect the gray bat. To use this standing analysis and receive a conclusion from IPaC through the DKey, each project must implement the following conservation measures in the list below:

- Projects will not involve the following activities: wind turbines, modifications to existing bridges, new point source discharges from a facility other than a water treatment plant, contaminants in the environment (e.g., leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant), or blasting (other than a fireworks display).
- Projects will not result in perennial stream loss that would require an individual permit under 404 of the Clean Water Act.
- Projects will not occur within 0.5 mile of a known gray bat hibernaculum and/or roosting site.
- Projects with action areas containing features that could potentially provide undocumented hibernacula and/or roosting habitat for gray bats will provide a Phase I habitat assessment¹ supporting that these features are not suitable for gray bat use.
- Projects that would discharge sediment into a stream during construction will minimize the effects by implementing applicable federal and/or state BMPs.
- Projects implementing drilling or boring will conduct appropriate preliminary evaluations to ensure that karst voids or other voids are unlikely to be encountered prior to drilling or boring.

To ensure compliance with the ESA, project-specific consultation (or other programmatic consultation, if applicable) with the Service may be necessary for projects that would not implement the conservation measures and, thus, would not receive a conclusion from IPaC. Those projects would not necessary result in significant adverse effects to the gray bat.

ACTION AREA

The Action Area is the entire Commonwealth of Kentucky. Because the projects will be proposed in the future, we cannot identify the specific action areas of individual projects.

SPECIES DESCRIPTION

Gray bats use caves year round for roosting, breeding, rearing young, and hibernating. They migrate between summer and winter caves and will use transient or stopover caves along the way. Gray bats eat a variety of flying aquatic and terrestrial insects present along streams, rivers, and lakes. Strongly intermittent and larger streams, rivers and lakes produce an abundance of insects and are especially valuable to the gray bat as foraging habitat. Summer caves are normally located close to rivers or lakes where the bats feed.

Additional information about the species, including status, life history, and conservation can be found in documents accessed from the Service's Environmental Conservation Online System (ECOS) (<https://ecos.fws.gov/ecp/>) and is incorporated by reference in this document.

STATUS OF THE SPECIES IN THE ACTION AREA

Gray bat records occur throughout Kentucky. Without site-specific data to inform the status of the species in a project area, gray bats are reasonably certain to occur in Kentucky wherever suitable habitat exists.

EFFECTS ANALYSIS

Projects comprising the Proposed Action typically involve some or all of the stressors listed below. Because the action areas of these projects will not include hibernacula for gray bats, per conservation measure #4, we only expect gray bats to potentially be exposed to stressors during the timeframe when they are not in hibernation (approximately April 1 – November 14). Because the action areas will not include roosting habitat for gray bats, also per conservation measure #4, we only expect gray bats to potentially be exposed to stressors during the night when they would be away from the roost.

Noise and Vibration

Noise and vibration produced by projects are typically produced temporarily during the construction phase and may be permanently produced during the operation phase. Because most construction activities occur during the day, we believe exposure to these stressors during construction would be minimal. Gray bats may encounter new sources of noise and vibration at night (e.g., vehicular traffic) when foraging or commuting near newly constructed developments. Adherence to conservation measure #2 will minimize loss to gray bat foraging and commuting habitat; therefore, the gray bats are most likely to be exposed to these stressors when traveling or foraging on the periphery of newly developed areas. There are several examples of Indiana bats continuing to roost in and use areas where they are habitually exposed to noise and vibration, including that from a military installation (U.S. Army Garrison Fort Drum 2011), an active timber harvest (Gardner et al. 1991), and an interstate highway and an airport (3D/International, Inc. 1996). We expect gray bats to similarly habituate to new noise and vibration. For these reasons, we expect the effects of noise and vibration from qualifying projects to the gray bat to be insignificant.

Night Lighting

Night lighting produced by projects may occur temporarily during the construction phase and/or permanently during the operation phase (e.g., facility lighting). Bats could potentially be exposed to this stressor at night while foraging and commuting. Gray bats may encounter new sources of night lighting when foraging or commuting near newly constructed developments. Adherence to conservation measure #2 will minimize loss to gray bat foraging and commuting habitat; therefore, gray bats are most likely to be exposed to night lighting when traveling or foraging on the periphery of newly developed areas where the effects of the stressor will be less severe. For these reasons, we expect that any effects of night lighting from qualifying projects to the gray bat from night lighting would be insignificant.

Loss and Degradation of Aquatic Resources

Gray bats may have to fly farther to forage if stream length is reduced or stream habitat is degraded. Adherence to conservation measure #2 will ensure that the stream loss from any one project would not likely significantly reduce, fragment, or degrade gray bat foraging habitat. Adherence to conservation measures #1 and #5 will ensure that impacts to water quality would be minor. For these reasons, we expect the effects of loss and degradation of aquatic resources from projects to have an insignificant effect on gray bat foraging habitat and resources.

CONCLUSION

If a project is not consistent with the conservation measures, the DKey will provide a response indicating that it cannot generate a conclusion for the gray bat and will recommend project-specific coordination with the KFO. If the user provides project-specific information consistent with the conservation measures, IPaC will generate a consistency letter (for non-federal action agencies) or a concurrence letter (for federal action agencies) concluding that the project is consistent with a “no effect” or a “may affect – not likely to adversely affect” determination for the gray bat. We base these conclusions on the effects analysis above, summarized in Table 1.

Table 1. A summary of the effects of the stressors from qualifying projects on the gray bat.

<i>Noise and Vibration</i>	None or insignificant
<i>Night Lighting</i>	None or insignificant
<i>Loss and Degradation of Aquatic Resources</i>	None or insignificant
Conclusion	“May affect – not likely to adversely affect”

LITERATURE CITED

- 3D/International, Inc. 1996. 1996 field studies for interim mitigation for impacts to Indiana bats at the Indianapolis International Airport in Marion County, Indiana. 125pp.
- Gardner, J.E., J.D. Garner, and J.E. Hofmann. 1991. Summer roost selection and roosting behavior of *Myotis sodalis* (Indiana bat) in Illinois. Unpublished report to Region-3 U.S. Fish and Wildlife Service, Fort Snelling, MN. 56 pp.
- U.S. Army Garrison Fort Drum. 2011. Biological Assessment on the proposed activities on the Fort Drum Military Installation, Fort Drum, New York (2012-2014) for the Federally-endangered Indiana bat (*Myotis sodalis*).

Big River Aquatic Species Standing Analysis

Covered Species

The U.S. Fish and Wildlife Service (Service) Kentucky Field Office (KFO) developed this part of the Determination Key (DKey) to streamline the process of reviewing projects that typically result in “no effect” or “may affect – not likely to adversely affect” determinations for the following federally listed species that occur in large rivers and/or large streams: clubshell (*Pleurobema clava*), fanshell (*Cyprogenia stegaria*), fat pocketbook (*Potamilus capax*), northern riffleshell (*Epioblasma torulosa rangiana*), orangefoot pimpleback (*Plethobasus cooperianus*), oyster mussel (*Epioblasma capsaeformis*), pink mucket (*Lampsilis abrupta*), purple catspaw (*Epioblasma o. obliquata*), rabbitsfoot (*Theliderma* (= *Quadrula*) *cylindrica*), ring pink (*Obovaria retusa*), rough pigtoe (*Pleurobema plenum*), sheepnose (*Plethobasus cyphus*), spectaclecase (*Margaritifera* (= *Cumberlandia*) *monodonta*), and pallid sturgeon (*Scaphirhynchus albus*).

PROPOSED ACTION

The proposed Action is the compilation of many different types of projects that typically would not significantly affect the species listed in the introduction. To use this standing analysis and receive a conclusion for these species from IPaC through the DKey, each project must qualify by not including any of the following activities:

- A new point source discharge into a stream or change to an existing point source discharge (e.g., outfalls; leachate ponds),
- Activities that will alter stream flow, such as hydropower energy production, impoundments, intake structures, diversion structures, and/or turbines,
- Dredging or in-stream gravel mining,
- Resource extraction (e.g., mining, oil/gas, logging) or associated exploration activities. Stream impacts (perennial, intermittent, or ephemeral) that will require an individual permit under 404 of the Clean Water Act, or
- Activities that would contribute measurable nonpoint source pollution to streams (e.g., sediment, nutrients, etc.)

Additional criteria/measures will apply depending on the status of the species in the Action Area of each project (see “Status of the Species in the Action Area” section below for a description of the different categories).

Proposed projects in which the portion of the Action Area within the AOI for a species covered under this DKey contains an under-surveyed river basin must meet one of the following criteria:

- Avoid disturbance to a perennial stream channel or its bank, or
- Provide a habitat assessment that supports that the perennial stream is not likely suitable for the species covered under this DKey.

Proposed projects that include the 0.5-mile buffer of a stream or river in which a species covered under this DKey occurs or may occur will meet all of the following criteria:

- Projects will not disturb the channel or bank or an ephemeral stream,
- Projects will not include excavation or grading of uplands within 200 feet from the bank of a perennial stream or in areas located in or partly in a "special flood hazard area" as designated by FEMA (as identified in the FEMA Flood Map Service Center at <https://msc.fema.gov/portal/home>), and

To ensure compliance with the ESA, project-specific consultation, or other applicable programmatic consultation with the Service may be necessary for projects that do not meet the above criteria and, thus, would receive a "may affect" conclusion under this DKey. Those projects would not necessarily result in significant adverse effects to the species covered under this part of the DKey.

ACTION AREA

The Action Area is the entire Commonwealth of Kentucky. Because the projects will be proposed in the future, we cannot identify the specific action areas of individual projects.

SPECIES DESCRIPTION

The mussel species listed above spend the adult portion of their life cycle in bottom substrates of rivers or large streams. Their glochidia, or larvae, require a host fish. The only fish species covered under this DKey, pallid sturgeon, occupies portions of the Mississippi River.

Additional information about the species, including status, life history, and conservation can be found in documents accessed from the Service's Environmental Conservation Online System (ECOS) (<https://ecos.fws.gov/ecp/>) and is incorporated by reference in this document.

STATUS OF THE SPECIES IN THE ACTION AREA

The mussel survey data in Kentucky is incomplete; many rivers and streams, or portions of rivers and streams, have not been surveyed or have been surveyed only in the distant past. The AOI for each species includes the standard AOI and at least one conditional AOI. The standard AOI for each species is composed of the actual stream or river in which the species occurs or may potentially occur and a 0.5-mile (mi) buffer around those streams or rivers. Each mussel species has a condition A AOI (composed of one or more of the conditions A-a – A-j listed below) that forms a 0.5 to 5-mi buffer around the standard AOI. Some species also have a condition B AOI.

- **Standard AOI** applies to river/stream where species is known to occur or may occur and includes a 0.5-mi buffer around those rivers/streams. Rivers/streams containing or potentially containing federally listed species covered under this part of the DKey were identified in conversations with malacologists familiar with Kentucky mussel distributions. These streams were categorized by river basin. Rivers/streams within each river basin are included in the standard AOI for a species if that species had been

recorded in a stream/river within that basin in Haag and Cicerello (2016) (Table 1). This will be updated as appropriate from data from subsequent studies and publications.

- **Condition A-a** applies to a 0.5-5 mi. buffer around the Cumberland River mainstem, below Cumberland Falls. Action areas that overlap with part of the AOI in which condition B applies will include the following condition on the species list generated by IPaC: *“The species may be affected by projects that significantly impact the Cumberland River mainstem.”*
- **Condition A-b** applies to a 0.5-5 mi. buffer around the Green and Barren Rivers. Action areas that overlap with part of the AOI in which condition C applies will include the following condition on the species list generated by IPaC: *“The species may be affected by projects that significantly impact the Green River and/or the Barren River.”*
- **Condition A-c** applies to a 0.5-5 mi. buffer around specific rivers/streams in the Kentucky River basin. Action areas that overlap with part of the AOI in which condition D applies will include the following condition on the species list generated by IPaC: *“The species may be affected by projects that significantly impact the Kentucky River mainstem and/or any of its following tributaries: Dix River, Eagle Creek, Elkhorn Creek, North Fork Elkhorn Creek, and South Fork Kentucky River.”*
- **Condition A-d** applies to a 0.5-5 mi. buffer around the Licking River and its tributary, the South Fork Licking River. Action areas that overlap with part of the AOI in which condition E applies will include the following condition on the species list generated by IPaC: *“The species may be affected by projects that significantly impact the Licking River and/or its tributary, the South Fork Licking River.”*
- **Condition A-e** applies to a 0.5-5 mi. buffer around the Mississippi River. Action areas that overlap with part of the AOI in which condition F applies will include the following condition on the species list generated by IPaC: *“The species may be affected by projects that significantly impact the Mississippi River.”*
- **Condition A-f** applies to a 0.5-5 mi. buffer around the Ohio River. Action areas that overlap with part of the AOI in which condition G applies will include the following condition on the species list generated by IPaC: *“The species may be affected by projects that significantly impact the Ohio River.”*
- **Condition A-g** applies to a 0.5-5 mi. buffer around specific rivers/streams in the Red River basin. Action areas that overlap with part of the AOI in which condition H applies will include the following condition on the species list generated by IPaC: *“The species may be affected by projects that significantly impact the Red River and/or any of its following tributaries: South Fork Red River and Whippoorwill Creek.”*
- **Condition A-h** applies to a 0.5-5 mi. buffer around specific rivers/streams in the Salt River basin. Action areas that overlap with part of the AOI in which condition I applies will include the following condition on the species list generated by IPaC: *“The species may be affected by projects that significantly impact the Salt River mainstem, and/or any of its following tributaries: Beech Fork, and/or Rolling Fork.”*

- **Condition A-i** applies to a 0.5-5 mi. buffer around a reach of the lower Tennessee River. Action areas that overlap with part of the AOI in which condition J applies will include the following condition on the species list generated by IPaC: *“The species may be affected by projects that significantly impact the Tennessee River.”*
- **Condition A-j** applies to a 0.5-5 mi. buffer around the Mississippi River and the lower reaches of the Clarks, Cumberland, Green, Ohio, Tennessee, Tradewater Rivers in which the fat pocketbook occurs or may potentially occur. Action areas that overlap with part of the AOI in which condition K applies will include the following condition on the species list generated by IPaC: *“The species may be affected by projects that significantly impact the Mississippi River and the lower reaches of the Clarks, Cumberland, Green, Ohio, Tennessee, Tradewater Rivers.”*
- **Condition B** applies to the entire watersheds of the Little, Pond, Rough, and Tradewater rivers. Action areas that overlap with part of the AOI in which condition A applies will include the following condition on the species list generated by IPaC: *“The species may potentially occur in suitable habitat within the following rivers: Little, Pond, Rough, and Tradewater; and their larger tributaries.”*

Table 1. River basin in which federally listed mussel occur or may occur.

	Cumberland River mainstem*	Green River basin^	KY River basin†	Licking River basin§	Mississippi River mainstem	Ohio River mainstem	Red River basin‡	Salt River basin*	Tennessee River mainstem
Clubshell		X	X	X		X		X	
Fanshell	X	X	X	X		X		X	
Fat pocketbook	Mississippi River and lower portions of Clarks, Cumberland, Green, Ohio, Tennessee, and Tradewater Rivers								
Northern riffleshell		X		X				X	
Orangefoot pimpleback	X					X		X	X
Pallid sturgeon					X				
Pink mucket	X	X		X		X		X	X
Purple catspaw	X	X	X	X					
Rabbitsfoot	X	X	X	X		X	X	X	X
Ring pink	X	X				X		X	X
Rough pigtoe	X	X		X		X			
Sheepnose	X	X	X	X		X			X
Spectaclecase	X	X				X			X

* Below Cumberland Falls.

^ Includes Barren River.

† Includes Dix River, Eagle Creek, Elkhorn Creek, North Fork Elkhorn Creek, and South Fork Kentucky River.

§ Includes South Fork Licking River.

‡ Includes South Fork Red River and Whippoorwill Creek

* Includes Beech Fork and Rolling Fork.

EFFECTS ANALYSIS

Projects comprising the Proposed Action may involve some or all of the stressors listed below.

Water Quality Degradation

Nonpoint-source pollutants from upland activities may enter rivers or streams in which these species occur and become suspended in the water column. Increased turbidity can indirectly effect mussels by impairing their ability to respire, reproduce, and feed (Watters 2009). Landis et al. (2013) observed a sharp decrease in pondmussel (*Ligumia subrostrata*) reproduction with higher total dissolved solids independent of food availability and speculated that it was likely attributed to physical interference with fertilization. Mussels may respond to turbidity with an

increased clearance rate (rate at which water is moved through the mussel) and increased production of pseudofeces to expel particulates from the gills. These responses may decrease fertilization rates by decreasing the chances of sperm uptake and causing sperm to become bound in mucus. Due to the relatively small scale of most projects covered by this DKey and the criteria that limit stream channel and bank disturbance and excavation and grading in projects, we believe that any effects of sediment deposition to species covered under this DKey would be insignificant.

Sediment Deposition

Nonpoint-source pollutants from upland activities may enter rivers or streams in which these species occur and settle out onto the substrate. Sediment deposited on the riverbed may smother or bury mussels and could cause individual harm or mortality (Marking and Bills 1980; Waters 1995). Depending on the depth of the substrate disturbance and/or deposition, some mussels may be able to adjust their vertical position such that the disturbance does not result in death. Sediment disturbance may also render habitats unsuitable for mussels by making the substrate more unstable. Sediment deposition may additionally affect mussel host fishes by smothering eggs or larvae of essential fish hosts, rendering fish spawning areas unsuitable and causing fish to abandon previously suitable habitats. Due to the relatively small scale of most projects covered by this DKey and the criteria that limit excavation and grading in projects, we believe that any effects of sediment deposition to species covered under this DKey would be insignificant.

CONCLUSION

If a project is not consistent with the criteria under the proposed Action, the DKey will provide a “may adversely affect” response indicating that it cannot generate a conclusion for these species and will recommend project-specific coordination with the KFO. If the user provides project-specific information consistent with the criteria, IPaC will provide a conclusion in a consistency letter (for non-federal action agencies) or a concurrence letter (for federal action agencies) concluding that the project is consistent with a “no effect” or a “may affect – not likely to adversely affect” determination for the species covered under the DKey with AOIs that overlap with the action area for the individual project. We base these conclusions on the effects analysis above, summarized in Table 1.

Table 1. A summary of the effects of the stressors from qualifying projects on the species covered under this part of the DKey.

<i>Water Quality Degradation</i>	None or insignificant
<i>Sediment Deposition</i>	None or insignificant
Conclusion	“May affect – not likely to adversely affect”

LITERATURE CITED

Haag, W.R., and R.R. Cicerello. 2016. A distributional atlas of the freshwater mussels of Kentucky. Scientific and Technical Series Number 8. Kentucky State Nature Preserves Commission, Frankfort, Kentucky. 299 Pp.

Landis, A.M.G., W.R. Haag, and J.A. Stoeckel. 2013. High suspended solids as a factor in reproductive failure of a freshwater muscle. *Freshwater Science*. 32(1): 70-81.

[Marking, L. and T.D. Bills. 1980. Acute effects of silt and sand sedimentation on freshwater mussels. Pages 204-211 in: J.L. Rasmussen, editor, Proceedings of the symposium on Upper Mississippi River bivalve mollusks. Upper Mississippi River Conservation Committee, Rock Island, Illinois, USA.](#)

Waters, T.F. 1995. *Sediment in Streams: Sources, Biological Effects, and Control*. American Fisheries Society Monograph 7, Bethesda, Maryland.

Small to Medium Stream Aquatic Species Standing Analysis

COVERED SPECIES

The U.S. Fish and Wildlife Service (Service) Kentucky Field Office (KFO) developed this part of the Determination Key (DKey) to streamline the process of reviewing projects that typically result in “no effect” or “may affect – not likely to adversely affect” determinations for the following federally listed species that occur in small to medium streams: Big Sandy crayfish (*Cambarus callainus*), blackside dace (*Chrosomus cumberlandensis*), Cumberland bean (*Villosa trabilis*), Cumberland darter (*Etheostoma susanae*), Cumberland elktoe (*Alasmidonta atropurpurea*), Cumberlandian combshell (*Epioblasma brevidens*), dromedary pearlymussel (*Dromus dromas*), duskytail darter (*Etheostoma percnum*), Kentucky arrow dater (*Etheostoma sagitta pilotum*), palezone shiner (*Notropis albizonatus*), relict darter (*Etheostoma chienense*), and snuffbox (*Epioblasma triquetra*).

PROPOSED ACTION

The proposed Action is the compilation of many different types of projects that typically would not significantly affect the species listed in the introduction. To use this standing analysis and receive a conclusion for these species from IPaC through the DKey, each project must qualify by not including any of the following activities:

- A new point source discharge into a stream or change to an existing point source discharge (e.g., outfalls; leachate ponds),
- Activities that will alter stream flow, such as hydropower energy production, impoundments, intake structures, diversion structures, and/or turbines,
- Dredging or in-stream gravel mining,
- Resource extraction (e.g., mining, oil/gas, logging) or associated exploration activities.
- Activities that would contribute measureable nonpoint source pollution to streams (e.g., sediment, nutrients, etc.)
- New or increased use of public recreational OHV trails.
- Stream impacts (perennial, intermittent, or ephemeral) that will require an individual permit under 404 of the Clean Water Act.
- Channel or bank disturbance of a perennial or intermittent stream, unless a conductivity report or species survey supports that none of the species covered by this DKey occur in the Action Area.
- Channel or bank disturbance of an ephemeral stream less than 600 feet upstream from its confluence with a perennial or intermittent stream, unless a conductivity report or species survey supports that none of the species covered by this DKey occur in the Action Area.
- Vegetation removal within 200 feet of a perennial stream bank.
- Excavation or grading located in or partly in a "special flood hazard area" as designated by FEMA.
- Excavation or grading that would create new water bars or ditches that channel stormwater into a stream.

Qualifying projects must also implement the following conservation measures, if applicable:

- All excavation and grading and BMPs to stabilize all excavated and graded areas will be completed within 1 month.
- Federal and/or state BMPs during construction to minimize sedimentation during stream channel disturbance.
- Federal and/or state BMPs during construction to minimize sedimentation in streams before and after excavation and grading.

To ensure compliance with the ESA, project-specific consultation, or other applicable programmatic consultation, with the Service may be necessary for projects that do not meet the above criteria and, thus, would receive a “may affect” conclusion under this DKey. Those projects would not necessarily result in significant adverse effects to the species covered under this part of the DKey.

ACTION AREA

The Action Area is the entire Commonwealth of Kentucky. Because the projects will be proposed in the future, we cannot identify the specific action areas of individual projects.

SPECIES DESCRIPTION

The species listed above occupy small to medium streams in the Action Area. Additional information about the species, including status, life history, and conservation can be found in documents accessed from the Service’s Environmental Conservation Online System (ECOS) (<https://ecos.fws.gov/ecp/>) and is incorporated by reference in this document.

STATUS OF THE SPECIES IN THE ACTION AREA

A small to medium stream species will appear on the IPaC species list for projects with action areas that intersect with an AOI for one or more of the species. Species AOIs are delineated by watershed, according to species occurrence data, and includes watersheds and portions of watersheds in which a species may occur even though it has not been previously documented there. These aquatic species may potentially occur in perennial and intermittent streams within their AOI. The level of detail for the AOI for each species is commensurate with the best available data about a species’ occurrence; the AOIs for some are relatively specific (e.g., blackside dace), while some are more broad (e.g., Big Sandy crayfish).

EFFECTS ANALYSIS

Projects comprising the Proposed Action may involve one or both of the stressors listed below.

Water Quality Degradation

On-site equipment could leak fuel, oil, and other fluids that would contaminate water into streams. The scale of the leak is relative to the amount of fluids contained in the equipment at the site of the project. Due to the criteria that limit the proximity of activities to intermittent and

perennial streams that could contain the species, we believe that water quality degradation from equipment leaks are discountable.

Sedimentation

Sediment, both suspended in the water column and accumulated on the substrate of the stream, has the potential to effect species covered by this DKey. As a result of sedimentation, fish experience hindered development of juveniles, clogged gill rakers and gill filaments, and decreased foraging efficiency (Wood and Armitage 1997). The aquatic invertebrates upon which fish and crayfish prey will be impacted by reduced primary production in turbid water and microhabitat alteration resulting from sedimentation (Wood and Armitage 1997). Increased sedimentation may induce physiological stress, change behavior, and/or reduce feeding rates and success of fish species (Newcombe and Jensen 1996).

Though clear correlations have not been documented, excessive sedimentation could potentially affect mussel species by disrupting the fish host relationship through several mechanisms: reduced visibility of lures/conglutinates, and decreased substrates for adherence of conglutinates (Brim Box and Mossa 1999, Berkman and Rabeni 1987, Messinger and Chambers 2001, Sutherland *et al.* 2002,). Sediment that deposits on the riverbed may smother or bury mussels by sediment (Marking and Bills 1980; Waters 1995). It can alter mussel habitat by changing the makeup of substrate to be coarser or finer, resulting in substrate conditions unsuitable for a particular mussel species.

Due to the relatively small scale of projects covered under this DKey and the criteria that limit impacts to streams and excavation and grading, we believe that any effects of sedimentation to species covered by this DKey would be insignificant.

CONCLUSION

If a project is not consistent with the criteria under the proposed Action, the DKey will provide a “may adversely affect” response indicating that it cannot generate a conclusion for these species and will recommend project-specific coordination with the KFO. If the user provides project-specific information consistent with the criteria, IPaC will provide a conclusion in a consistency letter (for non-federal action agencies) or a concurrence letter (for federal action agencies) concluding that the project is consistent with a “no effect” or a “may affect – not likely to adversely affect” determination for the species covered under the DKey with AOIs that overlap with the action area for the individual project. We base these conclusions on the effects analysis above, summarized in Table 1.

Table 1. A summary of the effects of the stressors from qualifying projects on the species covered under this part of the DKey.

<i>Water Quality Degradation</i>	Discountable
<i>Sedimentation</i>	None or insignificant
Conclusion	“May affect – not likely to adversely affect”

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Plant Species Standing Analysis

COVERED SPECIES

The U.S. Fish and Wildlife Service (Service) Kentucky Field Office (KFO) developed this part of the Determination Key (DKey) to streamline the process of reviewing projects that typically result in “no effect” (NE) or “may affect – not likely to adversely affect” (NLAA) determinations for plant species in Kentucky listed under the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*). This DKey specifically addresses the following species: Price’s potato-bean (*Apios priceana*), Braun’s rockcress (*Arabis perstellata*), Globe bladderpod (*Physaria globosa*), Virginia spiraea (*Spiraea virginiana*), Cumberland rosemary (*Conradina verticillata*), Kentucky glade cress (*Leavenworthia exigua* var. *lacinata*), Short’s goldenrod (*Solidago shortii*), Cumberland sandwort (*Minuartia cumberlandensis*), and white fringeless orchid (*Platanthera integrilabia*).

PROPOSED ACTION

The proposed Action is the compilation different types of projects that typically would not significantly affect federally listed plant species. To use this standing analysis and receive a NLAA conclusion from IPaC through the DKey, each project must not include suitable habitat within its Action Area or must not include specified activities that might expose the species to stressors.

ACTION AREA

The Action Area is the entire Commonwealth of Kentucky. Because the projects will be proposed in the future, we cannot identify the specific action areas of individual projects.

SPECIES DESCRIPTION

Information about each individual species, including status, life history, and conservation can be found in documents accessed from the Service’s Environmental Conservation Online System (ECOS) (<https://ecos.fws.gov/ecp/>) and is incorporated by reference in this document.

STATUS OF THE SPECIES IN THE ACTION AREA

A plant species will occur on a species list for an individual project if the Area of Influence assigned to that species (Table 1) intersects with the Action Area the DKey user inputs into IPaC.

Table 1: Counties comprising the Areas of Influence for federally listed plant species in Kentucky.

Species	Counties
Braun’s rock-cress	Franklin, Henry, Owen
Cumberland rosemary	McCreary
Cumberland sandwort	McCreary
Kentucky glade cress	Bullitt, Jefferson (only portions of each county)
Price’s potato-bean	Calloway, Crittenden, Livingston, Lyon, Marshall, Trigg, Warren
Short’s bladderpod	Anderson, Bourbon, Clark, Fayette, Franklin, Garrard, Jessamine, Madison, Mercer, Powell, Scott, Woodford
Short’s goldenrod	Fleming, Harrison, Nicholas, Robertson
Virginia spiraea	Laurel, Lewis, McCreary, Pulaski, Rockcastle, Whitley
White fringeless orchid	Laurel, McCreary, Pulaski, Whitley

EFFECTS ANALYSIS

The DKey first evaluates the potential for effects to each plant species by asking a question to determine if the Action Area of the proposed Action includes habitat suitable for the species. If the user answers the species-specific question with the answer specified in Table 2, the DKey will guide the user to a NE or NLAA determination for that species.

Table 2. Species-specific questions in the DKey and their corresponding answers that indicate that the Action Area of the proposed project does not include habitat suitable for the species.

Species	Questions	Answer
Braun’s rock-cress	Does the Action Area include forested slopes?	N
Cumberland rosemary	Does the Action Area include streams and/or areas within a 300-foot buffer from a stream?	N
Cumberland sandwort	Does the Action Area include sandstone ledges or rockhouses?	N
Kentucky glade cress	Will all activities occur within an area that is paved and/or inside a structure?	Y
Price’s potato-bean	Will all activities occur within an area that is paved, graveled, and/or inside a structure?	Y
Short’s bladderpod	Does the Action Area include forested slopes?	N
Short’s goldenrod	Will all activities occur within an area that is paved, graveled, and/or inside a structure?	Y
Virginia spiraea	Does the Action Area include streams and/or areas within a 300-foot buffer from a stream?	N
White fringeless orchid	Does the Action Area include bogs, fens, seeps, or other wetlands or areas within a 300-foot buffer around any of these features?	N*

* The user must answer an additional question to assess the potential for effects to this species.

If the user cannot conclude that the Action Area of the proposed Action does not contain habitat in the answer to the first question in the DKey, IPaC will either provide a “may adversely affect” conclusion or, for certain species, ask an additional question or set of questions to evaluate the potential for effects to the species (Table 3).

Table 3. Species-specific questions or set of questions in the DKey and their corresponding answers that indicate that the Action Area of the proposed project would not result in significant effects to the species.

Species	Questions	Answer
Kentucky glade cress	Will the proposed Action involve herbicide application?	N
	Will the proposed Action involve ground disturbance?	N
Price’s potato-bean	Will the proposed Action involve herbicide application?	N
	Will the proposed Action involve ground disturbance? Will the proposed Action involve vegetation removal or mowing?	N N
	Are the entire disturbance limits of the proposed Action in open, non-shaded areas (e.g., fields or lawns with no trees)?	Y
	Will the proposed Action involve vegetation removal?	N
Short’s bladderpod	Will the proposed Action involve herbicide application?	N
	Will the proposed Action involve ground disturbance?	N
	Will the proposed Action involve vegetation removal or mowing?	N
White fringeless orchid	Would the proposed project result in a measurable increase in precipitation runoff (e.g., from impervious surfaces, from timber removal) or involve grading that would change hydrological patterns?	N

CONCLUSION

If a project does not qualify through the DKey as a project that typically results in a NE or NLAA conclusion for a plant species on the official species list for the Action Area, IPaC will provide a MAA determination for that plant species and will recommend project-specific coordination with the KFO. If the project does qualify, IPaC will generate a consistency letter (for non-federal action agencies) or a concurrence letter (for federal action agencies) concluding that the project is consistent with a “no effect” or a “may affect – not likely to adversely affect” determination for the plant species.