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CHECKLIST OF THE FISHES OF THE CENTRAL AND NORTHERN APPALACHIAN MOUNTAINS

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Abstract.—A table lists 398 forms and 5 intergrade populations in 28 families in an area on the Atlantic slope from the Susquehanna River south to the Peedee River, including Ohio River basin drainages from the Monongahela River in Pennsylvania to the Tennessee River in Alabama and Tennessee.

The central Appalachians harbor a diverse fish fauna that includes numerous endemics. Jenkins, Lachner, and Schwartz (1972), as part of a zoogeographic analysis of this ichthyofauna, provided a table that lists the fishes of the central Appalachians by river drainage and general habitat. This table has been extremely valuable to ichthyologists, fisheries scientists, and environmental consultants throughout the past decade.

Numerous studies have substantially increased our knowledge of fish distribution throughout the central Appalachians (Hambrick *et al.* 1973, Hocutt and Hambrick 1973, Hocutt *et al.* 1973, Stauffer *et al.* 1975, Stauffer *et al.* 1976, Hocutt *et al.* 1978, Stauffer *et al.* 1978, Hendricks *et al.* 1979, Hocutt *et al.* 1979, Lee *et al.* 1980) and indicated that the original table should be updated. Moreover, it was thought that the addition of the Susquehanna, Licking, Green, and Kentucky rivers would enhance the usefulness of the faunal list.

The list (Table 1) includes 398 forms and 5 intergrade populations in 28 families. It covers an area on the Atlantic Slope from the Susquehanna River (New York and Pennsylvania) south to the Peedee River (North Carolina and South Carolina). Ohio River basin drainages that are included extend from the Monongahela River in Pennsylvania south to the Tennessee River in Alabama and Tennessee.

It should be noted that the list is conservative. If a question exists as to the current or historic presence of a species, it is not included. No attempt is made to distinguish species that were historically present in the drainage from those that currently occur. Trinomials are used only when the distribution of subspecies could be accurately determined.

The authors appreciate the encouragement of Dr. E. Lachner, who recognized the need for a revision of the original faunal list.

Table 1.—Fishes of the central and northern Appalachian drainages and their general habitat. X = category most frequently inhabited. Drainage occurrence: E = endemic, N = native, NP = probably present—native, NI = regarded as native but possibly introduced, I = introduced, IP = probably or possibly introduced, Ma = euryhaline or diadromous. Native extralimital distribution: So = south on Atlantic slope, No = north on Atlantic slope, 0 = predominantly Ohio basin form, M = lower and/or central Mississippi basin, G = Gulf of Mexico slope.

	Habitat		Drainage occurrence: Atlantic Slope									
		re	Roa	mes		ock						I
PETROMYZONTIDAE												
Ichthyomyzon bdellium	X	X X										
Ichthyomyzon castaneus	X X	X X										
Ichthyomyzon fossor	X	X X										
Ichthyomyzon gagei	X X	X X										
Ichthyomyzon greeleyi	X	X X										
Ichthyomyzon unicuspis	X X	X X										
Lampetra aepyptera	X X	X X	N	N	N	P	N	N	N	N	N	N
Lampetra appendix	X X	X X				N	N	N	N	N	N	
Petromyzon marinus	X X	X X	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma
ACIPENSERIDAE												
Acipenser brevirostrum	X	X									Ma	Ma
Acipenser fulvescens	X	X										
Acipenser oxyrhynchus	X	X				Ma			Ma	Ma	Ma	Ma
Scaphirhynchus platorynchus	X	X										
POLYODONTIDAE												
Polyodon spathula	X	X										
LEPISOSTEIDAE												
Lepisosteus spatula	X	X										
Lepisosteus oculatus	X	X										
Lepisosteus osseus	X X	X X	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma
Lepisosteus platostomus	X	X										
AMIIDAE												
Amia calva	X	X X	N	N	N	N	N	N	N	N	P	N N
ANGUILLIDAE												
Anguilla rostrata			Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma
CLUPEIDAE												
Alosa aestivalis	X X	X	Ma	Ma	Ma	Ma	I	Ma	Ma	Ma	Ma	Ma
Alosa alabamae												
Alosa chrysochloris	X	X										
Alosa mediocris	X	X	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma
Alosa pseudoharengus	X X	X	Ma	Ma	Ma	Ma	I	Ma	Ma	Ma	Ma	Ma
Alosa sapidissima	X X	X X	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma
Dorosoma cepedianum	X X	X X	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma
Dorosoma petenense	X	X	I			I	I	I				
HIODONTIDAE												
Hiodon alosoides	X	X										
Hiodon tergisus	X	X										
SALMONIDAE												
Coregonus artedii												IP
Coregonus clupeaformis												IP

Table 1.—Continued.

	Drainage occurrence													
	Ohio Basin												Native extralimital distribution	
			Kanawha: below falls	Kanawha: above falls			ic' 'g	entucky	reen	Cumberland: below falls	Cumberland: above falls			
PETROMYZONTIDAE														
Ichthyomyzon bdellium	NP	N	N		NP	NP	N	N	N	N		N		O
Ichthyomyzon castaneus														GM
Ichthyomyzon fossor						N	NP	N						
Ichthyomyzon gagei														GM
Ichthyomyzon greeleyi								N	N	N		N		O
Ichthyomyzon unicuspis						NP	NP	N	N	N				
Lampetra aepyptera	N	N	N	N	I N	N	N	N	N	N	N	N		GM
Lampetra appendix						N	NP	N	N	N		N	No	M
Petromyzon marinus													NoSo	
ACIPENSERIDAE														
Acipenser brevirostrum														
Acipenser fulvescens										N		N		GM
Acipenser oxyrhynchus														
Scaphirhynchus platorynchus							N	NP	NP	N		N		GM
POLYODONTIDAE														
Polyodon spathula	N	N	N		N		N	N	N	N		N		GM
LEPISOSTEIDAE														
Lepisosteus spatula										Ma		Ma		GM
Lepisosteus oculatus									Ma	Ma		Ma		GM
Lepisosteus osseus	Ma	Ma	Ma		Ma	Ma	Ma	Ma	Ma	Ma		Ma	NoSo	GM
Lepisosteus platostomus									Ma	Ma		Ma		GM
AMIIDAE														
Amia calva				I			N	N	N	N		N	NoSo	GM
ANGUILLIDAE														
Anguilla rostrata	Ma	Ma	Ma	Ma		Ma	Ma	Ma	Ma	Ma		Ma	NoSo	GM
CLUPEIDAE														
Alosa aestivalis													NoSo	
Alosa alabamae										N		N		GM
Alosa chrysochloris			Ma			Ma	Ma	Ma	Ma	Ma		Ma		GM
Alosa mediocris													NoSo	
Alosa pseudoharengus				I									No	
Alosa sapidissima													NoSo	
Dorosoma cepedianum	Ma		Ma		Ma	Ma	Ma	Ma	Ma	Ma		Ma	NoSo	GM
Dorosoma petenense			I	I				I	Ma	Ma		Ma		GM
HIODONTIDAE														
Hiodon alosoides	N					N	NP	N	N	N		N		M
Hiodon tergisus	N						N	N	N	N		N		GM
SALMONIDAE														
Coregonus artedii														
Coregonus clupeaformis													No	

Table 1.—Continued.

	Habitat						Drainage occurrence									
							Atlantic Slope									
	cd	and		Riv r		ς				4	к ano	es			otomac	Susquehanna
Oncorhynchus kisutch																*I*
Oncorhynchus nerka															*I*	*I*
Salmo gairdneri							*I*				*I*	*I*		*I*	I	I
Salmo ***trutta***							*I*				I	I		I	I	I
Salvelinus fontinalis			*X*		X	X	IP				N	N		NI	N	N
Salvelinus namaycush																*I*
OSMERIDAE																
Osmerus mordax															NI	NI
UMBRIDAE																
Umbra limi	*X*				X	X										
Umbra pygmaea	X				X	X	N	N	N	N	N	N	N	N	N	N
ESOCIDAE																
Esox a. americanus	X				X	X	N	N	N	N	N	N	N	N	N	N
Esox a. vermiculatus	**X**				**X**	**X**										
Esox lucius															I	I
Esox masquinongy	X	X		X	X						I	I			I	I
Esox niger	*X*	X			X	X	N	N	N	N	N	N	N	N	N	N
Esox reicherti																*I*
CYPRINIDAE																
Campostoma a. anomalum		X	X		X	X	IP				N	N			N	N
Campostoma oligolepis		X	X		X	X										
Carassius ***aurat****us*							*I*				*I*				*I*	I
Clinostomus elongatus		**X**				**X**										NI
Clinostomus f. funduloides		X				X	N	N	N	N	N	N	N	N	N	N
Clinostomus f. *estor*		*X*				*X*										
Clinostomus f. subsp.			X			X										
Couesius plumbeus		X	X		X	X										IP
Ctenopharyngodon ***idella***	*X*			**X**												
Cyprinus ***carpio***							I	I	I	I	I	I	I	I	I	I
Ericymba buccata		**X**			**X**	X								N	N	N
Exoglossum ***laurae***		X	X		X											
Exoglossum maxillingua		**X**			X						N	N	N	N	N	N
Hemitremia flammea		*X*				*X*										
Hybognathus hayi	*X*			X	X											
Hybognathus n. nuchalis	*X*			X	X											
Hybognathus n. regius	X	X		X	X		N	N	N	N	N	N	N	N	N	N
Hybopsis aestivalis hyostoma		**X**		**X**	**X**											
Hybopsis amblops		*X*			X	X										
Hybopsis cahni		*X*		X	X											
Hybopsis d. dissimilis		**X**			**X**											
Hybopsis hypsinotus		*X*			X		N									
Hybopsis i. insignis		*X*			*X*											
Hybopsis i. eristigma		X	X		X											
Hybopsis labrosa		*X*			X		N									
Hybopsis monacha		**X**			**X**											
Hybopsis storeriana	X	X		X												
Hybopsis x-punctata		**X**			**X**											

Table 1.—Continued.

	Drainage occurrence													
	Ohio Basin												Native extralimital distribution	
		Little Kanawha	Kanawha: below falls	Kanawha: above falls	Guya te	Big S	Li	K	O	U um el	Cumberland: above falls	Tennessee	Atlantic Slope	Elsewhere
Oncorhynchus kisutch														
Oncorhynchus nerka														
Salmo gairdneri														
Salmo trutta	I	I	I	I	I			I	I	I				
Salvelinus fontinalis	N	I	IP	N	N					IP	I	N	NoSo	
Salvelinus namaycush													No	
OSMERIDAE														
Osmerus mordax														
UMBRIDAE														
Umbra limi														
Umbra pygmaea													NoSo	G
ESOCIDAE														
Esox a. americanus	I												NoSo	G
Esox a. vermiculatus						N	N	N	N	N		N		GM
Esox lucius														
Esox masquinongy	N	N	N	IP		I	N	N	N	N				
Esox niger	I		I	I						N		N	NoSo	GM
Esox reicherti														
CYPRINIDAE														
Campostoma a. anomalum	N	N	N	N	N	N	N	N				N	NoSo	0
Campostoma oligolepis									N	N	N	N		GM
Carassius auratus	*I*		*I*				I	I	I	I	I	I		
Clinostomus elongatus	N						N						No	M
Clinostomus f. funduloides	N			N		N			N			NI	So	O
Clinostomus f. estor										N		N		
Clinostomus f. subsp.												N	So	
Couesius plumbeus													No	
Ctenopharyngodon idella										*I*				
Cyprinus carpio	I	I	I	I	I	I	I	I	I	I	I	I		
Ericymba buccata	N	N	N	N	N	N	N	N	N	N	N	N	No	GM
Exoglossum laurae	NI			N										O
Exoglossum maxillingua				NI									No	
Hemitremia flammea										N		N		G
Hybognathus hayi									N					GM
Hybognathus n. nuchalis						N			N	N		N		GM
Hybognathus n. regius													NoSo	
Hybopsis aestivalis hyostoma			N		N	N	N	N	N	N		N		GM
Hybopsis amblops	N	N	N			N	N	N	N	N		N		M
Hybopsis cahni												E		
Hybopsis d. dissimilis	N	N	N	N		N		N	N	N		N		O
Hybopsis hypsinotus													So	
Hybopsis i. insignis										N		N		
Hybopsis i. eristigma												E		
Hybopsis labrosa													So	
Hybopsis monacha												E		
Hybopsis storeriana	N	N	N			N	N	N	N	N		N		GM
Hybopsis x-punctata									N					M

Table 1.—Continued.

	Habitat				Drainage occurrence: Atlantic Slope					
	7	pand	R	ver	Peedee	Cape Fear	Neuse	es	Rappahannock	
Hybopsis sp. cf. *zanema*	X			X	N	N				
Leuciscus idus										I
Nocomis biguttatus		X		X X						
Nocomis effusus		X		X X						
Nocomis 1. leptocephalus		X X		X X	N N N N N N N N I P I P					
Nocomis 1. bellicus		X		X X						
Nocomis l. interocularis		X X		X X						
Nocomis micropogon		X X X X						N	N N N N	
Nocomis platyrhynchus		X X X X								
Nocomis raneyi		X		X X			N N N N I			
Not emigonus crysoleucas	X X			X X	N N N N N N N N N N N					
Notropis albeolus		X		X X		N N N N				
Notropis alborus		X		X X	N N			N		
Notropis altipinnis	X X			X	N N N N N					
Notropis amnis	X			X X						
Notropis amoenus	X X			X X	N I	N N N N N N N N N N				
Nofropis analostanus		X		X	N	N N N N N N N N N				
Notropis ardens		X		X X		I P	N N N N			I P
Notropis ariommus		X		X X						
Notropis atherinoides	X X			X X						
Notropis baileyi		X		X						
Notropis bellus		X		X X						
Notropis bifrenatus	X X			X			N N P N N N N N N			
Notropis blennius	X			X						
Notropis boops		X		X						
Notropis buchanani	X X			X X						
Notropis camurus	X X			X X						
Notropis cerasinus		X		X X		I P		N I P		
Notropis chalybaeus	X			X	N N N N N					N
Notropis chiliticus		X		X X	N			N		
Notropis chrysocephalus		X X		X X						
Notropis coccogenis		X X		X X						
Notropis cornutus		X X		X X					N N N N N	
Notropis c. cummingsae	X			X	N	N	N N			
Notropis d. dorsalis		X		X						
Notropis emiliae	X X			X X						
Notropis fumeus	X			X X						
Notropis galacturus		X X		X X						
Notropis heterodon		X		X X						N
Notropis heterolepis		X		X X						N
Notropis hudsonius	X X			X X	N	N N N N N N N N N				
Notropis leuciodus		X X		X X						
Notropis lirus		X		X						
Notropis lutipinnis		X		X X						
Notropis lutrensis	X X			X X X				I		
Notropis maculatus	X			X X	N N					
Notropis mekistocholas		X		X		E				
Notropis niveus		X		X		N N N N				
Notropis petersoni	X			X		N N				

Table 1.—Continued.

	Drainage occurrence: Ohio Basin												Native extralimital distribution	
			Kanawha: below falls	Kanawha: above falls	Guy te	B g d	Li	y	Gr	Cumberland: below falls	Cumberland: above falls		Atlantic Slope	
Hybopsis sp. cf. *zanema*														
Leuciscus idus														
Nocomis biguttatus								NI						
Nocomis effusus									N	N				
Nocomis l. leptocephalus													So	
Nocomis 1. bellicus														
Nocomis 1. interocularis												IP	So	
Nocomis micropogon	N	N	N		N	N	N	N		N	N	N	No	O
Nocomis platyrhynchus														
Nocomis raneyi														
Notemigonus crysoleucas	N		N	IP				N	N	N	I	N	NoSo	GM
Notropis albeolus														
Notropis alborus													So	
Notropis altipinnis													So	
Notropis amnis									N	N		N		GM
Notropis amoenus													No	
Notropis analostanus													No	
Notropis ardens				N		N	N	N	N	N	N	N		O
Notropis ariommus	N		N			N		N	N	N		N		O
Notropis atherinoides	N		N		N	N	N	N	N	N	N	N	No	GM
Notropis baileyi														
Notropis bellus														
Notropis bifrenatus													No	
Notropis blennius	N		N		N	N	N	N	N	N				
Notropis boops							N	N	N	N				
Notropis buchanani	N		N			NP	N	N	N	N		N		GM
Notropis camurus														
Notropis cerasinus														
Notropis chalybaeus													NoSo	GM
Notropis chiliticus				IP										
Notropis chrysocephalus	N	N	N	IP	N	N	N	N	N	N	N	N		GM
Notropis coccogenis				IP								N	So	
Notropis cornutus	N		N										No	M
Notropis c. cummingsae													So	G
Notropis d. dorsalis														
Notropis emiliae									N	N		N	So	GM
Notropis fumeus									N	N		N		GM
Notropis galacturus				NI		N				N	IP	N		
Notropis heterodon													No	
Notropis heterolepis										N			No	M
Notropis hudsonius	N			IP									NoSo	M
Notropis leuciodus				IP					N	N		N	So	O
Notropis lirus														
Notropis lutipinnis												IP	So	
Notropis lutrensis														
Notropis maculatus													So	GM
Notropis mekistocholas														
Notropis niveus													So	
Notropis petersoni													So	G

Table 1.—Continued.

	Habitat						Drainage occurrence: Atlantic Slope									
			ontane		eam		ee		N	Tar	anok		or	pda	I	Susque
Notropis photogenis		X		X	X											
Notropis procne procne	X	X			X	X						N	N	N	N	N
Notropis p. longiceps	X	X			X	X	N	N	N	N	N					
Notropis pyrrhomelas		X			X		N									
Notropis rubellus		X	X		X	X						N	N	N	N	N
Notropis rubricroceus			X		X	X										
Notropis scabriceps		X		X	X											
Notropis scepticus		X			X		N	N								
Notropis semperasper		X			X							E				
Notropis shumardi	X			X												
Notropis spectrunculus spectrunculus			X		X	X										
Notropis spectrunculus subsp.			X		X	X										
Notropis spilopterus spilopterus		X		X	X						IP				N	N
Notropis stilbius		X			X											
Notropis stramineus stramineus		X				X										
Notropis telescopus		X	X		X	X						I				
Notropis umbratilus cyanocephalus	X	X			X	X										
Notropis volucellus		X		X	X				N	N	N	NI				IP
Notropis whipplei		X		X	X											
Notropis sp. (paleband shiner)		X			X											
Notropis sp. (sawfin shiner)		X		X	X											
Notropis sp. (*longirostris* group)	X				X	X										
Phenacobius crassilabrum			X		X											
Phenacobius mirabilis	X	X		X	X											
Phenacobius teretulus		X			X											
Phenacobius uranops		X		X	X											
Phoxinus cumberlandensis		X				X										
Phoxinus eos						X										N
Phoxinus erythrogaster		X				X										
Phoxinus o. oreas		X	X			X	IP		N	N	N	N	N	IP	IP	
Phoxinus o. subsp.		X	X			X										
Pimephales notatus		X		X	X	X					IP	IP		IP	N	N
Pimephales promelas	X	X			X	X	I				I		I		I	I
Pimephales vigilax	X	X		X	X											
Rhinichthys atratulus		X	X		X	X					N	N	N	N	N	N
Rhinichthys cataractae		X	X		X	X					IP	N	N	N	N	N
Semotilus atromaculatus		X	X		X	X	N	N	N	N	N	N	N	N	N	N
Semotilus corporalis		X		X	X							N	N	N	N	N
Semotilus lumbee							N	N								
Semotilus margarita		X	X			X									N	N
Tinca tinca															I	
CATOSTOMIDAE																
Carpiodes carpio	X			X												
Carpiodes cyprinus	X	X		X			N				N	N			N	N

Table 1.—Continued.

	Drainage occurrence										Native extralimital distribution	
	Ohio Basin											
	little Kanawha	Kanawha: below falls	Kanawha: above falls	Guyandotte	Big Sandy	Licking	Cumberland: below falls	Cumberland: above falls	Atlantic Slope	
Notropis photogenis	N	N	N	N	N	N	N	N	N			0
Notropis procne procne											No	
Notropis p. longiceps			IP								So	
Notropis pyrrhomelas											So	
Notropis rubellus	N	N	N	N	N	N	N	N	N		No	M
Notropis rubricroceus			IP								So	
Notropis scabriceps												
Notropis scepticus											So	
Notropis semperasper												
Notropis shumardi							N		NP			GM
Notropis spectrunculus spectrunculus												
Notropis spectrunculus subsp.												
Notropis spilopterus spilopterus	N	N	N	N	N	N	N	N	N	N	No	M
Notropis stilbius									N			GM
Notropis stramineus stramineus	N	N	N	N	N	N	N					
Notropis telescopus		IP	IP									
Notropis umbratilus cyanocephalus		N		N	N	N	N	N				
Notropis volucellus	N	N	N	N	N	N	N	N	N	N		GM
Notropis whipplei		N	N		N	N	N	N	N	N		GM
Notropis sp. (paleband shiner)												
Notropis sp. (sawfin shiner)												
Notropis sp. *(longirostris* group)												
Phenacobius crassilabrum												
Phenacobius mirabilis			N		N	N	N	N	N	N		GM
Phenacobius teretulus												
Phenacobius uranops								N	N			
Phoxinus cumberlandensis									E	E		
Phoxinus eos											No	M
Phoxinus erythrogaster			N		N	N	N	N	N	N		
Phoxinus o. oreas				N						IP		
Phoxinus o. subsp.												
Pimephales notatus	N	N	N	N	N	N	N	N	N	N	No	GM
Pimephales promelas	I	I	I	P	I		N	N	N	N	N	No GM
Pimephales vigilax	N		N				N	N	N	N	N	GM
Rhinichthys atratulus	N		N	N	N	N	N	N	N	N	N	NoSoM
Rhinichthys cataractae	N		N	N							N	NoSo 0
Semotilus atromaculatus	N	N	N	N	N	N	N	N	N	N	NoSoGM	
Semotilus corporalis											No	
Semotilus lumbee												
Semotilus margarita	N										No	M
Tinca tinca												
CATOSTOMIDAE												
Carpiodes carpio					N	N	N	N	N	N		GM
Carpiodes cyprinus	N	N	N		N	N	N	N	N	N	NoSo	GM

Table 1.—Continued.

	Habitat				Drainage occurrence: Atlantic Slope								
	Lo	lan	o	g		Cape Fear	Neuse	Tar	Roanoke	a	or	Rappahannock	a.
Carpiodes velifer	X			X		N							
Catostomus catostomus			X		X X								
Catostomus commersoni		X X			X X	N N N N N N N N N N N							
Cycleptus elongatus	X X			X									
Erimyzon o. oblongus	X X				X X	N N N N N N N N N N N							
Erimyzon o. claviformis	X X				X X								
Erimyzon sucetta	X				X	N N N N N N							
Hypentelium etowanum		X X			X X								
Hypentelium nigricans		X X			X X N	N N N N N N N N N							
Hypentelium roanokense		X			X X				E				
Ictiobus bubalus	X			X		IP							
Ictiobus cyprinellus	X			X									
Ictiobus niger	X			X									
Lagochila lacera		X			X X								
Minytrema melanops	X X			X X		N N							
Moxostoma anisurum	X X			X X		N N N N N N							
Moxostoma ariommum		X			X				E				
Moxostoma atripinne		X			X X								
Moxostoma carinatum	X X			X X									
Moxostoma cervinum		X			X X			N N N N I					
Moxostoma duquesnei		X X	X	X									
Moxostoma erythrurum		X		X X					N	N			IP
Moxostoma hamiltoni		X			X X				E				
Moxostoma m. macrolepidotum	X X			X X		N N N N N N N N N N N							
Moxostoma m. breviceps	X X			X X									
Moxostoma pappillosum	X X			X X		N N N N N N							
Moxostoma rhothoecum		X X			X X				N N			IP	N
Moxostoma robustum		X			X	N N							
Moxostoma rupiscartes		X X			X X I P								
ICTALURIDAE													
Ictalurus brunneus	X X			X X		N N			IP				
Ictalurus catus	X X			X		N N	N N N N N N N N N						
Ictalurus furcatus	X			X		I I	I			I		I	
Ictalurus melas	X X			X X X		I			I				I
Ictalurus natalis	X X				X X	N N N N N N N N N N N							
Ictalurus nebulosus	X X			X X		N N N N N N N N N N N							
Ictalurus platycephalus	X X			X X		N N N I			N				
Ictalurus punctatus	X X			X X		I P I P I P I P I P I P I P I P I P I P							
Noturus baileyi		X			X								
Noturus elegans		X			X								
Noturus eleutherus		X			X								
Noturus exilis		X			X								
Noturus flavipinnis		X			X								
Noturus flavus		X X			X X								
Noturus furiosus	X X				X			N N					
Noturus gilberti		X			X				N N I				
Noturus gyrinus	X				X X	N N N N N N N N N N N							
Noturus insignis	X				X X	N N N N N N N N N N N							
Noturus leptacanthus	X X				X								

Table 1.—Continued.

	Drainage occurrence												Native extratimital distribution	
	Ohio Basin													
	Monongahela	Little Kanawha	Kanawha: below falls	Kanawha: above falls	Guyandotte	Big Sandy	Licking	Kentucky	Green	Cumberland: below falls	Cumberland: above falls	Tennessee	Atlantic Slope	Elsewhere
Carpiodes velifer	N		N		N	N	N	N	N	N		N	So	GM
Catostomus catostomus	N												No	GM
Catostomus commersoni	N	N	N	N	N	N	N	N	N	N	N	N	No	SoM
Cycleptus elongatus	NP	NP	NP			NP	N	NP	N	N		N		GM
Erimyzon o. oblongus													NoSo	
Erimyzon o. claviformis									N	N		N		GM
Erimyzon sucetta									N				So	GM
Hypentelium etowanum												NI		G
Hypentelium nigricans	N	N	N	N	N	N	N	N	N	N	N	N	So	GM
Hypentelium roanokense														
Ictiobus bubalus	N		N		N	N	N	N	N	N		N		GM
Ictiobus cyprinellus						N	N	N	N	N		N		GM
Ictiobus niger			N				NP	NP	N	N		N		GM
Lagochila lacera								N	N	P	N	N		M
Minytrema melanops		N	N		N	N	N	N	N	N	N	N	So	GM
Moxostoma anisurum	N	N	P	N		N	N	N	N	N	N	N	So	M
Moxostoma ariommum														
Moxostoma atripinne														
Moxostoma carinatum	N	N	N		N	N	N	N	N	N		N		GM
Moxostoma cervinum														
Moxostoma duquesnei	N	N	N		N	N	N	N	N	N	N	N		GM
Moxostoma erythrurum	N	N	N	I	P	N	N	N	N	N	N	N		GM
Moxostoma hamiltoni														
Moxostoma m. macrolepidotum													NoSo	M
Moxostoma m. breviceps	N	N	N		N	N	N	N	N	N		N		O
Moxostoma pappillosum													So	
Moxostoma rhothoecum														
Moxostoma robustum													So	
Moxostoma rupiscartes													So	G
ICTALURIDAE														
Ictalurus brunneus													So	G
Ictalurus catus													NoSo	G
Ictalurus furcatus	N		N				N	N	N	N		N		GM
Ictalurus melas	N	N			IP		N	N	N	N	N	N		GM
Ictalurus natalis	N	N	N	N	I	N	N	N	N	N	N	N	No	SoGM
Ictalurus nebulosus	N		N	N	I			N	N	N	N	IP	NNo	SoGM
Ictalurus platycephalus													So	
Ictalurus punctatus	N	N	N	N	N	I	N	N	N	N	N	N	So	GM
Noturus baileyi														
Noturus elegans									N			N		O
Noturus eleutherus						N	N	N	N	N		N		M
Noturus exilis								N	N	N		N		M
Noturus flavipinnis														
Noturus flavus	N	N			NI	N	N	N	N	N		N		M
Noturus furiosus														
Noturus gdberti														
Noturus gyrinus								N	N	N		N	NoSo	GM
Noturus insignis	IP				N							IP	NoSo	
Noturus leptacanthus												NI	So	G

Table 1.—Continued.

	Habitat			Drainage occurrence: Atlantic Slope								
	Lo	U	c	Pee	Roano	James	York	Rappahannock	Potomac	Susquehanna
Noturus miurus		X	X							
Noturus nocturnus		X	X X							
Noturus stigmosus	X	X	X							
Noturus stanauli		X	X X							
Noturus sp. cf. *leptacanthus*	X		X	N	N					
Pylodictis olivaris	X	X	X X	I	I					
AMBLYOPSIDAE										
Amblyopsis spelaea										
Chologaster agassizi	X	X	X							
Chologaster cornuta	X		X	X	N	N	N	N	N	N
Typhlichthys subterraneus		X								
APHREDODERIDAE										
Aphredoderus sayanus	X	X	X	X	N	N	N	N	N	N	N	N
PERCOPSIDAE										
Percopsis omiscomaycus		X	X X						N	N
GADIDAE										
Lola Iota										NI
CYPRINODONTIDAE										
Fundulus albolineatus		X	X							
Fundulus catenatus		X	X X							
Fundulus d. diaphanus	X	X	X	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma
Fundulus heteroclitus	X			Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma
Fundulus lineolatus	X		X	X	N	N	N	N	N				
Fundulus notatus	X	X	X							
Fundulus olivaceus		X	X							
Fundulus rathbuni		X	X	X	N	N	N	N				
Fundulus stellifer		X	X X							
Fundulus waccamensis	X			N		NP				
Fundulus sp.		X	X							
POECILIIDAE										
Gambusia a. affinis	X	X	X X							
Gambusia a. holbrooki	X	X	X X	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma
Heterandria formosa	X		X	NP	N					
ATHERINIDAE										
Labidesthes sicculus		X	X							
Menidia extensa	X									
GASTEROSTEIDAE										
Apeltes quadracus							Ma	Ma	Ma	IP
Culaea inconstans										IP
COTTIDAE										
Cottus baileyi		X	X X	X X						
Coitus b. bairdi		X	X X	X X		N	N		N	N	N	N

Table 1.—Continued.

	Drainage occurrence													
	Ohio Basin												Native extralimital distribution	
		Little Kanawha	Kanawha: below falls	Kanawha: above falls						Cumberland: below falls	Cumberland: above falls	Tennessee	Atlantic Slope	Elsewhere
Noturus miurus	N	N	N		N	N	N	N	N	N	N	N		GM
Noturus nocturnus						•		N	N	N				GM
Noturus stigmosus						N	N	N	N					
Noturus stanauli														
Noturus sp. cf. *leptacanthus*														
Pylodictis olivaris	N	N	N	N	N	N	N	N	N	N	N	N		GM
AMBLYOPSIDAE														
Amblyopsis spelaea														O
Chologaster agassizi									N	N				
Chologaster cornuta													So	
Typhlichthys subterraneus									N	N		N		GM
APHREDODERIDAE														
Aphredoderus sayanus									N	N		N	NoSo	GM
PERCOPSIDAE														
Percopsis omiscomaycus	N	N	N		N	N	N		N				No	M
GADIDAE														
Lola Iota							NI	NI					No	M
CYPRINODONTIDAE														
Fundulus albolineatus												E		
Fundulus catenatus									N	N		N		M
Fundulus d. diaphanus	I												No	
Fundulus heteroclitus														
Fundulus lineolatus													So	G
Fundulus notatus							N	N	N	N		N		GM
Fundulus olivaceus										N		N		GM
Fundulus rathbuni													So	
Fundulus stellifer												IP		G
Fundulus waccamensis														
Fundulus sp.										N		N		
POECILIIDAE														
Gambusia a. affinis							IP	IP	Ma	Ma	IP	Ma		GM
Gambusia a. holbrooki													NoSo	G
Heterandria formosa													So	G
ATHERINIDAE														
Labidesthes sicculus	N	N	N	I	N	N	N	N	N	N	N	N	So	GM
Menidia extensa														
GASTEROSTEIDAE														
Apeltes quadracus														
Culaea inconstans														
COTTIDAE														
Cottus baileyi														
Cottus b. bairdi	N	N	N	N	N	N	N	N		N		N	No	M

Table 1.—Continued.

	Habitat								Drainage occurrence: Atlantic Slope										
	Lo and	and			am				Neuse	Tar	Roano	Jame		Rappahannock	otomac				
Cottus bairdi subsp.		X			X	X													
Cottus c. carolinae		X			X	X													
Cottus carolinae subsp.		X			X	X													
Cottus cognatus		X			X	X													N
Cottus girardi		X	X		X	X						N				N	N		
Cottus sp. (smoky sculpin)			X		X	X													
Cottus sp.																E			
PERCICHTHYIDAE																			
Morone americana	X				X	X			Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma
Morone chrysops	X	X			X	X			I				I						I
Morone mississippiensis	X				X														
Morone saxatilis	X				X	X			Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma	Ma
CENTRARCHIDAE																			
Acantharcus pomotis	X					X	X		N	N	N	N	N	N	N	N	N		
Ambloplites cavifrons		X				X				N	N	N							
Ambloplites r. rupestris		X	X	X	X				IP				I	IP			I	I	I
Centrarchus macropterus	X					X			N	N	N	N	N	N	N	N	I	N	I
Elassoma evergladei	X					X			N	N									
Elassoma zonatum	X					X			N		N	N	N	N					
Elassoma sp.	X						X												
Elassoma sp.	X						X	E											
Enneacanthus chaetodon	X					X			N		N	N	N	N					
Enneacanthus gloriosus	X					X			N	N	N	N	N	N	N	N	N	N	N
Enneacanthus obesus	X					X			N		N	N	N	N	N	N	P	N	
Lepomis auritus		X				X	X		N	N	N	N	N	N	N	N	N	N	N
Lepomis cyanellus		X				X			I	I	I	I	I	I		I	I	I	I
Lepomis gibbosus		X				X	X		N	N	N	N	N	N	N	N	N	N	N
Lepomis gulosus		X			X	X			N	N	N	N	N	N	N	N	I	P	N
Lepomis humilis	X	X				X	X												
Lepomis macrochirus	X	X			X	X			NI	NI	IP	IP	IP	IP	IP	IP	IP	IP	IP
Lepomis marginatus	X					X			N	N	N	N	N						
Lepomis megalotis		X				X	X										I		
Lepomis microlophus	X	X				X			NI	NI	IP	IP	I				I	I	
Lepomis punctatus	X					X			N	N	N								
Micropterus coosae																			
Micropterus d. dolomieui		X				X	X		I		I			I	I	I	I	I	I
Micropterus p. punctulatus	X	X			X	X													
Micropterus s. salmoides	X	X			X	X			N	N	N	N	N	N	I	P	I	P	I	P	IP
Pomoxis annularis	X	X			X	X			I	I	I			I	I		I	I	I
Pomoxis nigromaculatus	X	X			X	X			N	N	N	N	N	IP		IP	IP	IP	IP
PERCIDAE																			
Ammocrypta asprella		X			X	X													
Ammocrypta clara		X			X	X													
Ammocrypta pellucida		X			X	X													
Ammocrypta vivax	X	X			X	X													
Etheostoma acuticeps		X	X	X	X														
Etheostoma asprigene	X				X														

Table 1.—Continued.

	Drainage occurrence												Native extralimital distribution	
	Ohio Basin													
		Little Kanawha	Kanawha: below falls	Kanawha: above falls	G dotte	Big ndy	Li	ntucky	E	Cumberland: below falls	Cumberland: above falls	Tennessee	Atlantic Slope	Elsewhere
Cottus bairdi subsp.												N		
Cottus c. carolinae								N	N	N		N		
Cottus carolinae subsp.												N		
Cottus cognatus													o	
Cottus girardi														
Cottus sp. (smoky sculpin)													S	
Cottus sp.														
PERCICHTHYIDAE														
Morone americana													NoSo	
Morone chrysops	I	NI	NI	IP		NI	NP	N	N	N		N		GM
Morone mississippiensis										N		N		GM
Morone saxatilis				I		I		I	I	I		I	NoSo	G
CENTRARCHIDAE														
Acantharcus pomotis													NoSo	G
Ambloplites cavifrons														
Ambloplites r. rupestris	N	N	N	IP	N	N	N	N	N	N	N	N	No	M
Centrarchus macropterus									N	N		N	So	M
Elassoma evergladei													So	
Elassoma zonatum												N	So	GM
Elassoma sp.														
Enneacanthus chaetodon													NoSo	
Enneacanthus gloriosus													NoSo	G
Enneacanthus obesus													NoSo	
Lepomis auritus				IP				I		I	I	I	NoSo	G
Lepomis cyanellus	N	N	N	IP	N	N	N	N	N	N	N	N		GM
Lepomis gibbosus	NI		N	IP			IP			IP		IP	NoSo	M
Lepomis gulosus			N	IP			N	N	N	N	IP	N	So	GM
Lepomis humilis		IP					N	N	N	N	N	N		GM
Lepomis macrochirus	N	N	N	IP	N	N	N	N	N	N	N	N	So	GM
Lepomis marginatus												N	So	GM
Lepomis megalotis	N	N	N	I	N	N	N	N	N	N	N	N		GM
Lepomis microlophus	IP					IP	IP	IP	N	N		N	So	GM
Lepomis punctatus									N			N	So	GM
Micropterus coosae											I			G
Micropterus d. dolomieui	N	N	N	IP	N	N	N	N	N	N	N	N		M
Micropterus p. punctulatus	N	N	N	NI	N	N	N	N	N	N	N	N		M
Micropterus s. salmoides	N	N	N	IP	N	N	N	N	N	N	NI	N	So	GM
Pomoxis annularis	N	N	N	IP	N	N	N	N	N	N	NI	N		GM
Pomoxis nigromaculatus	N	N	N	IP		N	N	N	N	N		N	So	GM
PERCIDAE														
Ammocrypta asprella									N	N				GM
Ammocrypta clara									N	N		N		GM
Ammocrypta pellucida	N	N	N		N	N	N	N	N	N				M
Ammocrypta vivax												N		GM
Etheostoma acuticeps												E		
Etheostoma asprigene									N	N		N		GM

Table 1.—Continued.

	Habitat						Drainage occurrence											
							Atlantic Slope											
	nd			n											pa			
Etheostoma aquali		X			X													
Etheostoma atripinne		X			X	X												
Etheostoma barbouri		X			X	X												
Etheostoma bellum		X		X	X	X												
Etheostoma blennioides blennioides		X	X		X	X											N	N
Etheostoma b. gutselli			X		X	X												
Etheostoma b. newmanii		X	X		X	X												
Etheostoma b.: newmanii x blennioides		X			X	X												
Etheostoma b.: n. x gutselli																		
Etheostoma blennius		X			X	X												
Etheostoma boschungi		X				X												
Etheostoma caeruleum		X			X	X											NI	
Etheostoma camurum		X		X	X													
Etheostoma chlorobranchium			X		X													
Etheostoma chlorosomum	X				X													
Etheostoma cinereum		X			X													
Etheostoma collis collis	X	X				X	N											
Etheostoma c. lepidinion	X	X				X			N	N		N						
Etheostoma duryi		X			X	X												
Etheostoma etnieri		X			X	X												
Etheostoma flabellare		X	X		X	X		N	N	N	N	N	N				N	N
Etheostoma fusiforme fusiforme	X					X			N	N	N	N	N				N	
Etheostoma f. barratti	X					X	N											
Etheostoma gracile	X				X	X												
Etheostoma histrio	X	X			X													
Etheostoma jessiae		X			X													
Etheostoma kanawhae		X			X													
Etheostoma kennicotti		X			X	X												
Etheostoma longimanum		X	X		X	X							E					
Etheostoma luteovinctum		X			X													
Etheostoma m. maculatum		X			X													
Etheostoma m. sanguifluum		X			X													
Etheostoma m. vulneratum		X	X		X													
Etheostoma mariae	X	X			X	X	E											
Etheostoma meadiae		X			X	X												
Etheostoma microlepidum		X			X													
Etheostoma neopterum	X	X				X												
Etheostoma n. nigrum		X			X	X				N	N	N	N					
Etheostoma n. susanae		X				X												
Etheostoma n.: nigrum x susanae		X			X	X												
Etheostoma obeyense		X			X	X												
Etheostoma olivaceum		X				X												
Etheostoma o. olmstedi	X	X			X	X				N	N	N	N	N				
Etheostoma o.: o. x atromaculatum																	N	
Etheostoma o. atromaculatum	X	X			X	X						N		N	N	N	N	N

Table 1.—Continued.

	Drainage occurrence										
	Ohio Basin										
	Little Kanawha	Kanawha: below falls	Guyandotte	Big Sandy	Licking	Kentucky	Cumberland: below falls	Cumberland: above falls		Native extralimital distribution	e
Etheostoma aquali											
Etheostoma atripinne											
Etheostoma barbouri											
Etheostoma bellum											
Etheostoma blennioides blennioides	N	N	N	N	N	N	N	N			O
Etheostoma b. gutselli											
Etheostoma b. newmanii							N	N	N		
Etheostoma b.: newmanii × blennioides											
Etheostoma b.: n. x gutselli											
Etheostoma blennius											
Etheostoma boschungi											
Etheostoma caeruleum	N	N	N	N	N	N	N	N	N	N	N		
Etheostoma camurum	N	N	N				N		N		N		O
Etheostoma chlorobranchium											
Etheostoma chlorosomum								N	N		N		GM
Etheostoma cinereum											
Etheostoma collis collis												So	
Etheostoma c. lepidinion											
Etheostoma duryi											
Etheostoma etnieri											
Etheostoma flabellare	N	N	N	N	N	N	N	N	N	N	N	No	So M
Etheostoma fusiforme fusiforme												No	
Etheostoma f. barratti											IP	So	GM
Etheostoma gracile								N	N		N		GM
Etheostoma histrio								N			N		GM
Etheostoma jessiae													
Etheostoma kanawhae													
Etheostoma kennicotti								N	N	N	N		O
Etheostoma longimanum													
Etheostoma luteovinctum													
Etheostoma m. maculatum			N				N	N					O
Etheostoma m. sanguifluum													
Etheostoma m. vulneratum													
Etheostoma mariae													
Etheostoma meadiae													
Etheostoma microlepidum													
Etheostoma neopterum													
Etheostoma n. nigrum	N	N	N	N	N	N	N	N	N	N	N	No	GM
Etheostoma n. susanae													
Etheostoma n.: nigrum x susanae													
Etheostoma obeyense													
Etheostoma olivaceum													
Etheostoma o. olmstedi												No	
Etheostoma 0.: 0. × atromaculatum													
Etheostoma o. atromaculatum												No	

Table 1.—Continued.

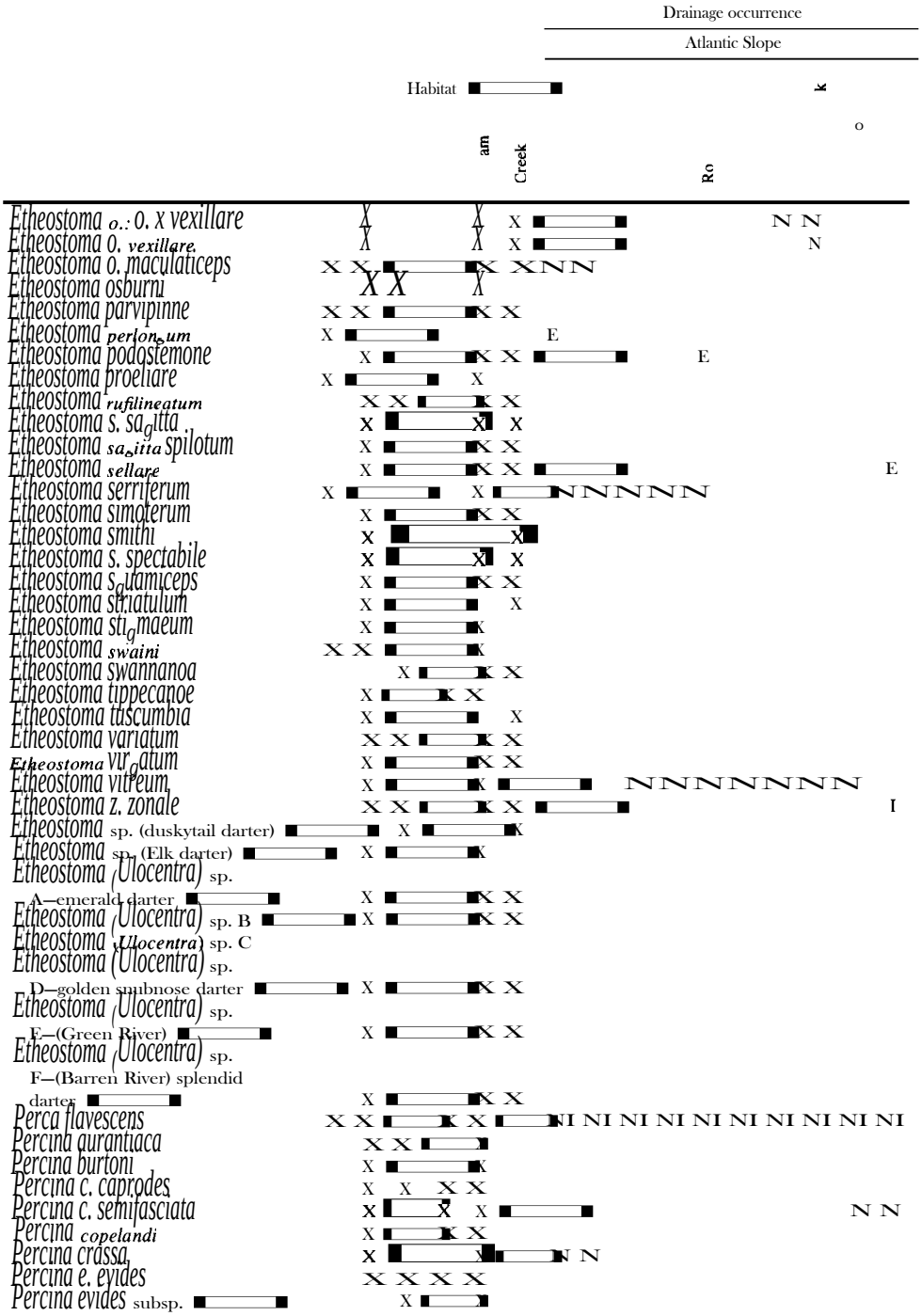

Table 1.—Continued.

	Drainage occurrence													
	Ohio Basin												Native extralimital distribution	
			Kanawha: below falls	Kanawha: above falls		Big				Cumberland: below falls	Cumberland: above falls		Atlantic Slope	
Etheostoma O.: o. x vexillare														
Etheostoma o. vexillare														
Etheostoma o. maculaticeps													So	
Etheostoma osburni														
Etheostoma parvipinne														
Etheostoma perlongum														
Etheostoma podostemone														
Etheostoma proeliare										N		N		GM
Etheostoma rufilineatum														
Etheostoma s. sagitta										E	E			
Etheostoma sagitta spilotum														
Etheostoma sellare														
Etheostoma serriferum													So	
Etheostoma simoterum				NI		NI								
Etheostoma smithi														
Etheostoma s. spectabile							N	N	N	N				
Etheostoma squamiceps									N	N		N		O
Etheostoma striatulum														
Etheostoma stigmaeum									N	N		N		GM
Etheostoma swaini												N		GM
Etheostoma swannanoa														
Etheostoma tippecanoe		N	N				N	N	N	N		N		O
Etheostoma tuscumbia														
Etheostoma variatum	N	N	N		N	N	N	N						O
Etheostoma virgatum														
Etheostoma vitreum													No	
Etheostoma z. zonale	N	N	N		N	N	N	N	N	N				
Etheostoma sp. (duskytail darter)														
Etheostoma sp. (Elk darter)														
Etheostoma (Ulocentra) sp. A—emerald darter								N		N	N			
Etheostoma (Ulocentra) sp. B												N		G
Etheostoma (Ulocentra) sp. C												N		M
Etheostoma (Ulocentra) sp. D—golden snubnose darter														
Etheostoma (Ulocentra) sp. E—(Green River)														
Etheostoma (Ulocentra) sp. F—(Barren River) splendid darter														
Perca flavescens	NI		IP	IP						IP		IP	No	M
Percina aurantiaca														
Percina burtoni														
Percina c. caprodes	N	N	N	NI	N	N	N	N	N	N	N	N		
Percina c. semifasciata													No	M
Percina copelandi			N		N	N	N	N	N	N				
Percina crassa													So	
Percina e. evides			N			N	N	N	N	N				
Percina evides subsp.														

Table 1.—Continued.

	Habitat					Drainage occurrence: Atlantic Slope				
	an o	pla	lo	n	Stre	e	Tar		Rap 2	Potcmac
Percina gymnocephala		X	X		X					
Percina macrocephala		X		X	X					
Percina maculata		X		X	X					
Percina n. notogramma		X			X				N	N N N
Percina n. montuosa		X			X				E	
Percina ouachitae	X	X		X	X					
Percina oxyrhyncha		X	X	X	X					
Percina p. peltata		X			X				N	N N N N
Percina p. nevisense		X			X		N	N	N	
Percina pelt ata subsp.		X			X				E	
Percina phoxocephala		X			X					
Percina rex		X			X				E	
Percina roanoka		X			X		N	N	N	NI
Percina s. sciera	X	X		X	X					
Percina shumardi	X	X		X						
Percina squamata		X	X		X					
Percina tanasi		X		X						
Percina (Odontopholis) sp.		X			X					
Stizostedion canadense	X	X		X						
Stizostedion v. vitreum		X		X	X	IP	NI		NI	NI I N
SCIAENIDAE										
Aplodinotus grunniens										

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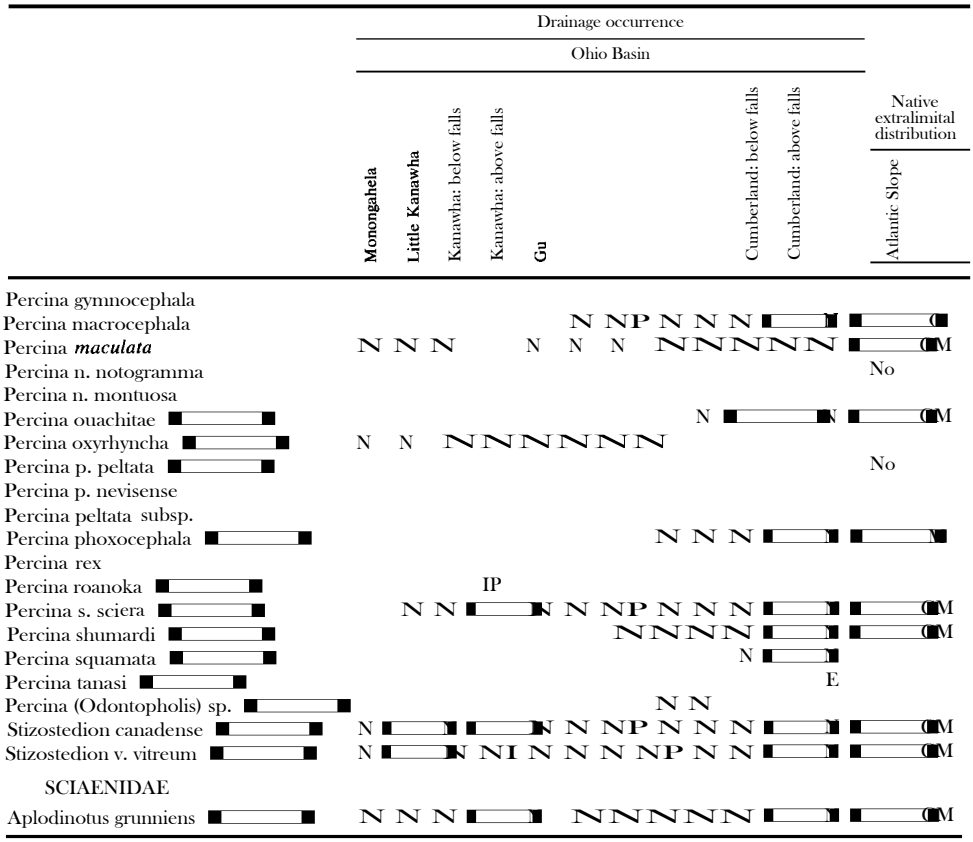
Table 1.—Continued.



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